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COMPUTERWORLD

JavaScript can trace user tracks

By Frank Hayes

Corporate Internet users who haven't yet upgraded to Netscape Navigator 2.0 may want to put it off again.

Web site developers experimenting with Navigator 2.0's JavaScript scripting language have discovered how to create World Wide Web sites that can eavesdrop on users until they end their browsing session — long after they believe they have left a nonsecure Web site.

In response, Netscape Communications Corp. in Mountain View, Calif., last week quietly put a Navigator upgrade — Version 2.01, which allows users to shut off JavaScript — on its Web site for downloading.

That is a relief to corporate users with large intranets. "We have not yet rolled out 2.0, but anytime you have something that has unknown or unwanted side effects, it's a concern," said John Swartzendruber, an information consultant at Eli Lilly & Co. in Indianapolis. His internal internetwork has more than 7,000 users.

JavaScript isn't related to Sun Microsystems, Inc.'s Java Internet programming language, de-

JavaScript, *page 113*

Shifting LANscape

NetWare managers launch 'net forum

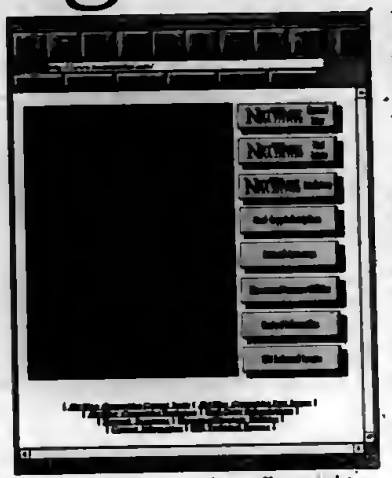
By Patrick Dryden

NetWare administrators who are frustrated with vendor-controlled support services and the chaos of NetWare-specific Internet newsgroups now have a better option: www.nuinet.com.

At Novell, Inc.'s BrainShare developer and user conference this week, NetWare Users International will inaugurate a technical forum dubbed NUInet. It is free to user group members and anyone else responsible for NetWare 3.x and 4.x environments and related products.

Even better, the opinions and remedies provided through NUInet don't reflect the vendor's party line, even though Novell backs NUI.

NetWare, *page 113*



NetWare Users International *now offers an independent support forum at www.nuinet.com. The peer-run forum is already receiving good reviews.*

Unrest may spur server fee revamp

By Laura DiDio and Tim Ouellette

Picture this. You're a product manager trying to get statistics for a year-end report that was due on your boss's desk yesterday. But your efforts to retrieve the data from the file server — normally a routine task — fail. You can't access the data because the server has locked you out.

Why? Because Novell, Inc. and Banyan Systems, Inc. are still selling outmoded server-based licensing schemes that befuddle businesses, can cost big bucks, lock users off the server and sometimes cause companies to unknowingly violate the licensing pacts.

Microsoft Corp., meanwhile, is cleaning up with Windows NT Serv-

Price, *page 113*

Cheap Pentium Pros go mainstream

By Jaikumar Vijayan

A series of upcoming price cuts from Intel Corp. is expected to make Pentium Pro systems far more affordable for corporations looking at the more robust Windows NT platform down the road.

Analysts said they expect Intel to roll back Pentium Pro prices by 20% to 40% during the next several months. That would drop the price of a 150-MHz chip from $804 to less than $600 and that of a 180-MHz chip from $911 to $730, according to Semico Research Corp. in Phoenix.

This pricing action is expected to prompt hardware vendors to split their mainstream PC lines into two product streams to address the continuing tose-up between Windows 95 and Windows NT in some major corporations.

One line will comprise Pentium-based systems loaded with both Windows 3.11 and Windows 95. The other will have Pentium Pro systems preload-

Pentium Pro, *page 16*

Chip shot

Intel in May will announce a high-end 200-MHz Pentium Pro chip with a 512K-byte cache. The chip will cost $1,528 — about 23% less than Intel's originally planned introductory price of $1,989.

Lotus hitting slow Notes with 4.0

By Tim Ouellette

Some early customers are running into performance problems — mainly associated with slow response times — on the Windows NT version of Notes 4.0, Lotus Development Corp. acknowledged last week.

The problem is just a small crack in an otherwise seamless rollout of the upgraded groupware. But observers said many Notes users are opting for Windows NT, so early signs of trouble bear watching. Most users are finding that Notes 4.0's performance is better than that of earlier 3.x versions, but they also say Release 4.0 is memory-hungry and requires tweaking and testing to run smoothly.

Performance gaps

Several reports of slow Notes performance have surfaced among users of single-processor Windows NT servers. "We are running a [Notes 4.0] NT server that is performing horribly," said one user on an on-line forum. He said the server bogs down even though only about six people are accessing Notes off his single-processor machine.

Some users are experiencing response

Slow Notes, *page 12*

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WHAT'S INSIDE

■ Cisco details sweeping two-year SNA networking product plans. **See story, page 6,** *by Bob Wallace.*

■ IS managers in the insurance industry face a host of thorny problems, from object technology to year 2000 conversion issues. **See stories, page 16,** *by Thomas Hoffman.*

◀ Tampa Electric is automating its year 2000 conversion process to battle costs and downtime. **See story, page 71,** *by Craig Stedman.*

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Inside Computerworld

March 18, 1996

News

NEWS

Ultra-notebook wars
Digital Equipment Corp. is the first on the block with an ultra-light notebook. But it won't be the last.

It's the legacy, stupid
Microsoft is finishing up its Network OLE to link Windows applications together across an enterprise. But users say what they really need is a way to connect Windows to mainframe apps — and other vendors are jumping in to solve that problem.

Microsoft goofs
Microsoft officials acknowledge they dropped the ball on delivering Visual Basic for Applications to all Office products because the popularity of the Internet threw the company a curve.

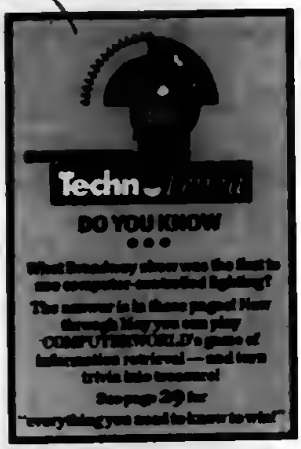
Java competitor
"Java, schmava," is the message Microsoft sent when it unveiled Active X, new object technology for the Internet, at a developer conference last week.

OPINION

AOL's sellout
America Online's Steve Case sold out to Microsoft for a song, Paul Gillin says.

Internet appliances
Humorist Chris Miksanek thinks the $500 PC is overpriced.

E-mail privacy
It's time to applaud the 40% of companies that have E-mail privacy policies and time for the other 60% to get with it, says consultant Michael F. Cavanagh.



Choice Cuts

Cybrarian to the rescue

Need the specs on a competitor's product? The contact info for an obscure researcher? Mary Ellen Bercik knows where to go on-line to get people out of jams.
See In Depth, page 84

Did you write off mainframers? *Well, write 'em back in — they've found new life as middle managers.* **See Managing, page 74**

Technical Sections

SERVERS & PCS

Multiprocessing
SMP servers will get a boost late this year when Sequent and Data General unveil technology that gives a shared-memory look to parallel systems.

SOFTWARE

Names database
A national database of place-names is an official reference source and a boon to business.

Windows/Unix porting tools
Users aren't buying tools to port Windows applications to Unix.

THE ENTERPRISE NETWORK

Remote access costs
Companies that don't spend money up front on remote access training and support face higher costs along the way.

THE INTERNET

Web misuse
A day in the life of Web misuse at large companies.

Review: Microsoft's IIS
Microsoft's Internet Information Server is a powerful tool for building Internet and intranet sites — but it doesn't handle commercial transactions very well.

CORPORATE STRATEGIES

Year 2000
Tampa Electric is trying to hold down the cost of its year 2000 conversion project by using automated tools to fix the date fields in its mainframe applications.

CyberCongress
Rep. Vernon J. Ehlers (R-Mich.) talks about his plans to network the offices of his 434 colleagues and turn the House of Representatives into "CyberCongress."

Features

MANAGING

No money, honey!
Bank makes crashing debut.

IN DEPTH

Cybrarian to the rescue

CAREERS

Webmaster survival skills
Webmasters must manage the new marriage of IS and users. For many, it's no honeymoon.

Evolving job titles
Job titles are evolving, with many now defying description. Setting salaries for these new positions is no easy matter.

Regional scope
Career opportunities for IS professionals in Michigan and Ohio.

MARKETPLACE

ISDN
Doing ISDN isn't easy, but the gains can make the pains worthwhile.

Evaluating the CIO

Just what is the chief information officer's role in your organization? Grab a pencil and find out by taking a CIO leadership test.

COMPUTERWORLD
Leadership Series
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A programming error led The Chase Manhattan Bank NA to send default notices to 11,000 secured credit-card customers recently. The letters should have gone to only 89 customers, *Bloomberg Business News* reports.

New York City's database of stolen cars brought unwarranted grief to two motorists last month, the *New York Daily News* reports. Lester Luis of Queens said he was roughed up and arrested after the cops pulled over his car because the computer said it was stolen. Lebert Folkes was shot in the face by police officers who stopped him after the computer said Folkes was driving a stolen car. Both cases involved cars that were reported stolen and then recovered — but the database hadn't been updated.

Computer glitches are common in leap years [CW, Feb. 26], and this year was no exception. Consider the following incidents:

- About 60,000 people couldn't buy Fantasy 5 lottery tickets in Arizona Feb. 29 because the lottery machine software didn't recognize the leap day, the *Arizona Republic* reports.
- Lab equipment software used by heart surgeons at Papworth Hospital in the U.K. wouldn't function Feb. 29, so laboratory analyses had to be done by other labs that use a different vendor's equipment, the *Times* (U.K.) newspaper reports.
- Higher cab fares went into effect in New York City March 1. But the meters programmed by one company in Queens forgot about the leap day and charged the higher rate Feb. 29, *The New York Times* reports.

For music students, those long hours of solo practice may be more productive with a computerized practice partner from Coda Music Technology in Eden Prairie, Minn. The Vivace Intelligent Accompaniment system uses patented technology that follows a soloist's tempo changes just like a human accompanist. The system includes clip-on microphones, a foot switch, a synthesizer and software for PCs or Macintoshes. It costs $1,695. The vendor offers thousands of musical compositions on game-style cartridges so students can, for example, practice the flute solo for a Mozart concerto or improvise with a jazz quartet.

A St. Louis family was shocked to find that its new laptop computer came bundled with child pornography. The couple is suing CompUSA in Dallas after they and one of their children accidentally viewed a pornographic file on what they thought was a new system. The couple is seeking $1 million for emotional distress and $10 million for alleged consumer fraud. CompUSA officials say the company is sorry [about the incident] but defends its policy of repackaging returned computers as new if all manuals and software remain sealed. — *Patrick Dryden*

Nabisco has unveiled its Web site at **http://www.nabisco.com**. Visitors can chew through the history of Lorna Doone cookies, scan the company's quarterly financial results or search for recipes that use Oreos, Teddy Grahams or Cream of Wheat. — *Stewart Deck*

■ **Send contributions of offbeat news, lists and anecdotes to mbetts@cw.com.**

Remember those chairs in school that had a writing surface extended from one arm? BodyBilt Seating in Dallas offers the X-Tension Arm, an adjustable surface for keyboard, mouse or laptop use. It costs $400.

Human Factors

A wrist rest won't help. An adjustable keyboard tray won't help.

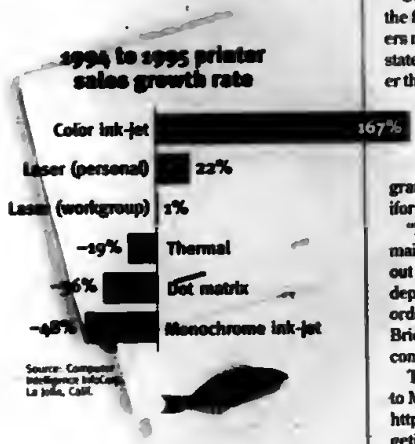
But a study of ways to prevent carpal tunnel syndrome from frequent keyboard use found one thing that helps. "Placing a conventional keyboard on a downward-sloping surface that tilts the base of the keyboard away from the user" helps users keep their wrists in a straight, comfortable position, a new field study confirms.

This counterintuitive finding is reported in the January issue of *Ergonomics in Design*, published by the Human Factors and Ergonomics Society in Santa Monica, Calif.

Researchers said [in general] keeping the wrist in a "neutral" or flat position relieves pressure on the nerves that run through the wrist's carpal tunnel.

Tilting the keyboard back tends to keep the typist's wrists in that neutral zone more than the other methods studied, according to a research team headed by Alan Hedge at Cornell University in Ithaca, N.Y.

– *Mitch Betts*



News shorts

Sun's Netra goes 64-bit

Sun Microsystems, Inc. next week will introduce 64-bit versions of its Netra Internet servers, sources said.

The machines are expected to narrow a performance lead held by Silicon Graphics, Inc. (SGI) in the high-end commerce server market.

Sun historically has been the top vendor of World Wide Web servers, but SGI is on the offensive with its 64-bit hardware and WebForce technology, said Clay Ryder, an analyst at Zona Research, Inc. in Redwood City, Calif. The UltraSPARC-based Netras should get Sun "back in the same league," he said.

USWeb Corp. wants to franchise Web developers

A group of former Novell, Inc. executives last week launched a venture dedicated to bringing the franchising model of business to the Internet.

USWeb Corp. in Santa Clara, Calif., said it wants to sign up small Web developers in every major U.S. city and offer them centralized administration, marketing, research and development, plus the cooperative buying power of a large corporation.

"The reason we chose the franchise model," said Joe Firmage, chairman and CEO of USWeb, "is that you retain the incredible creative talents of the entrepreneurs while giving them the infrastructure of a large corporation."

Microsoft program to improve ISDN ordering

There may be help on the way for users who find that ordering ISDN makes *A Nightmare on Elm Street* seem like a Walt Disney film.

Microsoft Corp. last week launched Get ISDN, under which Windows users can order an Integrated Services Digital Network (ISDN) line over the Web.

US West Communications, Inc. was the first carrier to join the program; users now can order ISDN in 11 of the 14 states in the carrier's territory. The other three states will be added in the third quarter.

Pacific Bell, the local carrier that led the industry in ISDN deployment, has also joined the program. It offers the service in 90% of California.

"It sounds slick and simple, but it remains to be seen if these two can wipe out the single biggest obstacle to ISDN deployment," which is the process of ordering ISDN service, said Daniel Briere, president of TeleChoice, Inc., a consultancy in Verona, N.J.

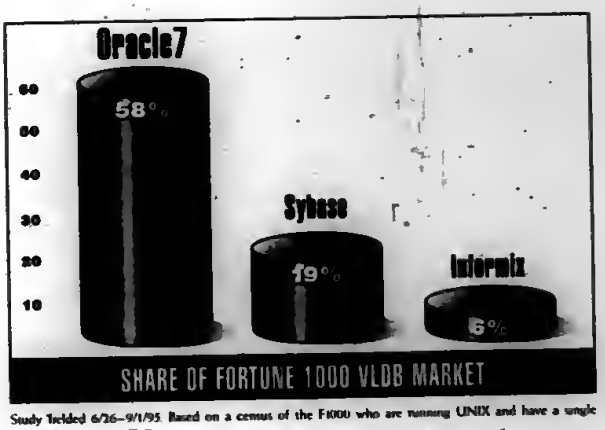
To use the program, users can dial in to Microsoft's Get ISDN Web site at http://www.microsoft.com/windows/getisdn/.

For more **News shorts,** *see page 8*

Data Warehouse Comparison

Data warehouses are central information repositories for storing and analyzing vast amounts of historical and reference data from a number of different sources. Oracle7 has many more features for data warehousing than any other DBMS.

Features	ORACLE7	Sybase System 11	Informix 7.2
	Lots	Zero	None
	Yes	Not Quite	Yes
	Yes	No Way	No
	Yes	Nope	Yes
	Yes	Yes	Yes
	Yes	No	Yes
	Yes	Never	No
	Yes	Nope	No
	Yes	Yes	No
	Yes	No Way	No
	Yes	No	No
	Yes	Sorry	No
	Yes	Nyet	No
	Yes	Not	Yes
	Yes	Never	No



Study fielded 6/26–9/1/95. Based on a census of the F1000 who are running UNIX and have a single DB ≥ 50GB. Source: IDC

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Digital first out with ultraslim subnotebooks

By Mindy Blodgett and Jaikumar Vijayan

Digital Equipment Corp. last week fired the opening salvo in a brewing vendor war to grab the lead in the emerging ultraslim notebook market.

Digital is the first to hit the street with a subnotebook, but users will soon have lightweight notebook offerings from several vendors. These computers generally weigh less than 5 pounds and measure a little more than an inch high.

Many vendors are convinced there are customers for ultrathin machines, but some industry observers caution that the untested market may prove risky. For instance, notebook market leader Toshiba has no plans to introduce a subnotebook.

"The new lightweight notebooks are a very interesting and exciting development," said Bill Ablondi, an analyst at Giga Information Group, Inc. in Cambridge, Mass. "We'll have to see if the trend catches on with users."

IBM PC Co. has said that later this year, it will release an ultraportable model that will weigh 4 pounds, measure 1⅛ in. thick and have a 12.1-in. screen. Compaq Computer Corp., Dell Computer Corp., NEC Technologies, Inc. and Texas Instruments, Inc. are reportedly gearing up to enter the fray as well.

These subnotebooks sacrifice little in the way of performance, according to industry analysts. Built on 100-, 120- and 133-MHz Intel Corp. Pentium processors, the ultrathin notebooks incorporate a technique called "slicing," wherein add-on modules allow them to be expanded.

For instance, the Digital HiNote Ultra II, available immediately in limited quantities, can become a portable multimedia notebook when a slice — the Mobile Media Module — is added. The notebook gets CD-ROM capabilities and weighs 6 pounds.

But industry analysts wonder if users will pay for the sophisticated engineering needed, which puts the cost of lightweight notebooks between $3,000 and $5,000. Analysts are also concerned about the potential fragility of the new design.

Douglas Moran, an information systems analyst at CRSS Constructors, Inc. in Denver, said that while he is interested in lighter notebooks and modularity, his main goal is to provide feature-rich notebooks for his users.

"I have users who are not interested in any trade-offs," Moran said. "A couple of pounds is not as important as palatable CD-ROM and multimedia features." Toshiba America Information Systems, Inc. is taking a wait-and-see approach. Jeffrey Friedrichs, vice president of product marketing, said that while the company isn't ruling out ultraportables, "we just don't have a lot of compelling research that says the customers are clamoring for this. It's a craze, and we'll see where it goes, but right now, we don't think there are the right trade-offs."

As for Digital, analysts say the new portables are, unlikely to turn the company into a market leader, but they say it has made some smart decisions.

Slices and dices

New features of Digital's HiNote Ultra II

Processor: 100-, 120- and 133-MHz Pentium
Dimensions: 1.1-in. thick
Weight: Under 4 pounds
Screen: 10.4-in., Super VGA, active-matrix color

Price: $3,000 to $4,699 (HiNote Ultra II); $4,999 to $5,999 (HiNote Ultra II with Windows NT)

1 **Removable hard disk drive:** 810M bytes to 1.35G bytes of storage and up to 40M bytes of memory

2 **Mobile Media Module:** Attaches to the bottom and adds multimedia and CD-ROM capabilities. It makes the notebook 2 inches thick and weigh 6 pounds.

3 **Port replicator**

Remote access works best with up-front training and support. See page 51.

Cisco maps SNA network plans

Covers LAN switches, WAN features and management tools

By Bob Wallace

Cisco Systems, Inc. last week laid out a wide-ranging, two-year plan for wares that will let information systems managers at IBM shops build switched internetworks, merge duplicate networks and manage SNA network performance.

Network management

Called CiscoBlue, the road map details cheaper and more flexible LAN switching products, new wide-area network features and an array of tools that go beyond basic network management.

Nick Lippis, president of Strategic Networks Consulting, Inc. in Rockland, Mass., said the blueprint solidifies Cisco's lead over all other internetworking vendors in the SNA networking market. "CiscoBlue covers an awesome array of SNA connectivity hardware and software," Lippis said. "They're ahead of everyone, including 3Com, Bay and IBM itself."

The blueprint calls for a major assault on the Token Ring switching market: Cisco will ship in 60 days a stackable Token Ring switch jointly developed with IBM that will have eight ports, can be expanded to 16 ports and can be stacked eight units high. The switches will cost roughly $700 to $800 per port.

Scheduled to ship in the months that follow are Fiber Distributed Data Interface and Asynchronous Transfer Mode uplinks for the switch. Later this year, the vendor will ship a Token Ring switching module for its high-end Catalyst 5000 LAN switching hub.

Inexpensive Token Ring

By mid-1997, Cisco pledges to roll out a Token Ring switch that will cost $350 to $400 per port, which is what users pay today for shared-capacity Token Ring hubs.

"Token Ring switching is a major market because about 50% of clients on Token Rings support mission-critical applications as opposed to 12% of Ethernet clients," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy. (Ethernet has the larger installed base.)

"With this plan, Cisco is serving notice that it's going to force down Token Ring switching prices, a move that will put heavy pressure on smaller vendors like 3Com and Madge to follow suit," Nolle said. Bigger players have more expensive switches.

That would be good news for one user.

"We're interested in Token Ring switching for our administration department, but we really want to see the price per port come down to parity with Ethernet switches," said Mohammed Fatmi, a network manager at North Carolina State University, which is a 3Com shop. "Greater competition could make that a reality, but, in the meantime, we're on hold for Token Ring switching."

Novell readies NetWare version that integrates IPX and TCP/IP. See page 55.

IBM paints Ramac Array as fill-in for delayed Seascape

By Bob Francis

IBM last week souped up its Ramac Array family of mainframe storage systems to mollify users until its long-awaited Seascape system hits the street late next year.

The Ramac line will get faster data transfer rates and new features for disaster recovery and data migration.

Mainframe storage

The enhancements come at a time when IBM has been battered by competition from EMC Corp. in the high-end disk drive market.

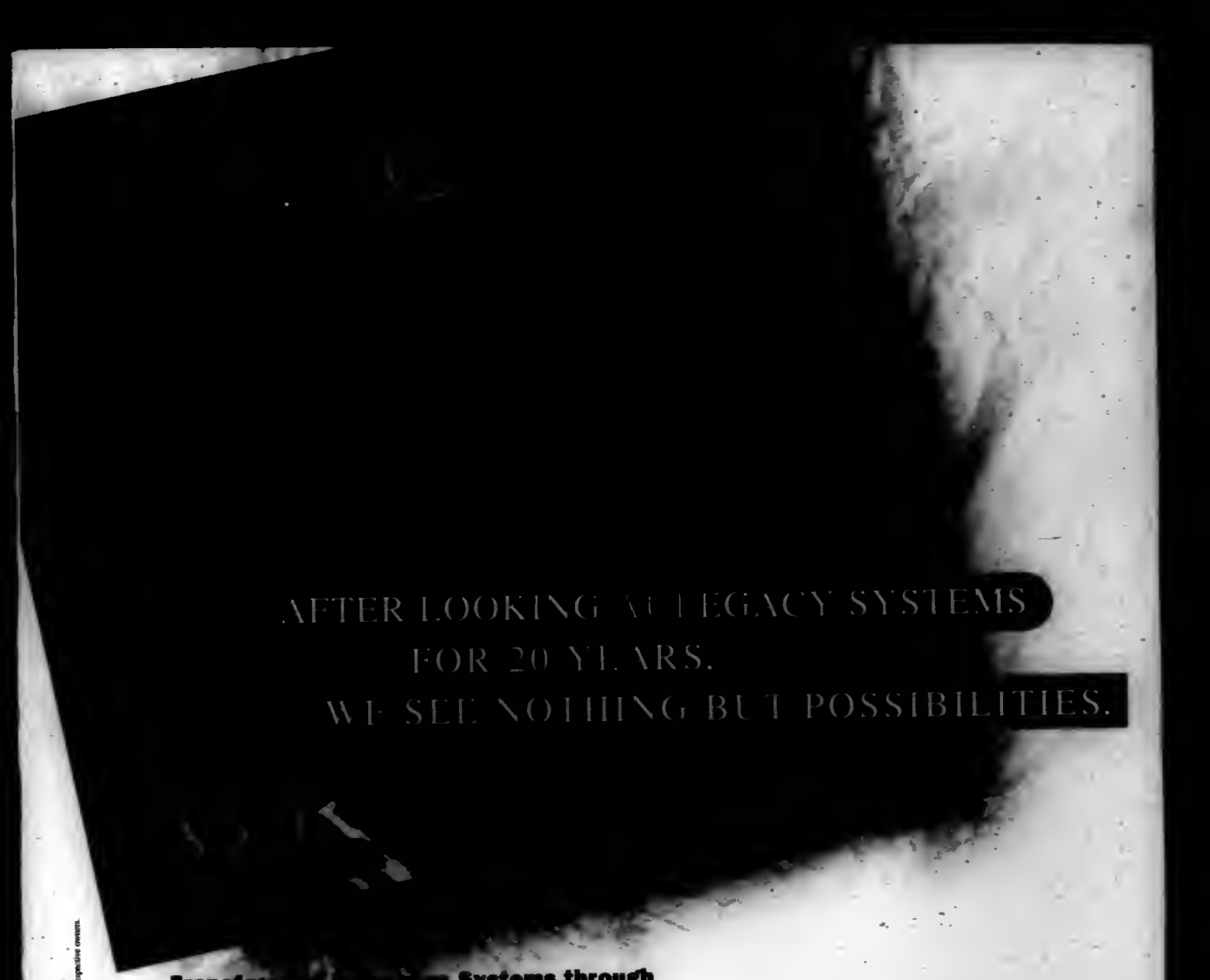
IBM also has been hurt by delays in Seascape, a storage subsystem scheduled for release next year (CW, Jan. 2).

The delays have cost IBM dearly. EMC surpassed IBM in mainframe gigabytes shipped last year, with a market share of 41% compared with IBM's 35%, according to International Data Corp. in Framingham, Mass.

The Ramac Array enhancements will be available June 26. They were announced at CeBit, a computer trade show, last week in Hannover, Germany, and include the following:

- Improved disaster recovery and data migration features that use remote copy services, which provide users an off-site copy of data in case of a disaster.
- Increased allowable distance between Escon-attached 3990 Model 6 units and host processors of 27 miles, more than double the previous distance.
- A new track format to move data that resides on older 3380 systems to the new Ramac Array family and 3990 Model 6 Storage Control systems.
- A new 4G-byte maximum cache for greater throughput, and 128M bytes of nonvolatile storage for improved subsystem performance.

The company also has added Escon-attachment capability to its Magstar 3590 tape storage line, which will allow mainframe customers to attach their systems to the tape drive.



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Network OLE too narrow

By Frank Hayes

Maybe Network OLE is trying to solve the wrong problem.

While Microsoft Corp. puts the finishing touches on its Network OLE, which will let Windows applications communicate across a network, corporate information systems shops are saying that making Windows-to-Windows connections isn't their big problem.

"We have a large supply of legacy applications and legacy programmers, and almost everything we do involves mainframe transactions," said Timothy M. Tully, vice president of architecture and technology at T. Rowe Price and Associates in Baltimore. "We want to be able to use Excel or Visual Basic to make those connections."

Other vendors are responding to those concerns. They are jumping in with products that will let users connect Windows applications on different machines on a network, including mainframes and Unix servers.

Open Environment Corp. in Boston last week announced OLEnterprise, a networked version of OLE that lets Windows connect with applications that run on IBM's mainframe MVS and Unix systems from Sun Microsystems, Inc., Hewlett-Packard Co., IBM and Digital Equipment Corp.

Good communication skills

The following products allow OLE-based applications to communicate networkwide

Rent Software *Redwood City, Calif.*	D'OLE	Connects OLE to OLE or NextStep
Open Environment *Boston*	OLEnterprise	Connects OLE to OLE, Unix or MVS
Microsoft *Redmond, Wash.*	Network OLE	Connects OLE to OLE

That sounds a lot more appealing than Network OLE by itself, corporate developers said. "OLE to OLE is pretty slick to see, but I don't see us having a lot of use for that," said Tully, who is evaluating OLEnterprise.

T. Rowe Price's *Timothy M. Tully says Network OLE doesn't address legacy connections*

OLEnterprise is scheduled to ship April 30 and will cost $249 per developer. The product is an extension of Open Environment's Entera middleware, which handles communication between machines and offers support for security, user authentication and systems management.

Network OLE will bring many of the same features to communications between Windows-based PCs and servers when it ships as part of an upgrade to Windows NT later this year. But Microsoft isn't rushing to make OLE-based connections with other platforms. The Redmond, Wash., software giant late last year signed Software AG of North America, Inc. to port OLE to MVS and other enterprise systems. Those products won't be available until at least late 1997.

Microsoft vows amends on late VBA for Office

By Lisa Picarille
SAN FRANCISCO

Microsoft Corp. officials last week acknowledged they dropped the ball on delivering Visual Basic for Applications (VBA) to all Office products because the popularity of the Internet threw the company a curve.

"The spirit was willing, but the flesh was weak," said Paul Maritz, executive vice president of Microsoft's World Wide Product Group, at the Microsoft Professional Developers Conference held here.

"VBA will be out across the product line this year. I swear. I promise," Maritz said.

Because of the frenzy surrounding the Internet, Microsoft focused on delivering VB Script, an Internet scripting language that is a subset of the VBA scripting language. It is similar to Sun Microsystems, Inc.'s Java scripting language.

VBA was intended for corporate developers and power users who need to create macros that work across Microsoft software.

VBA has already been embedded in several of the applications that make up Office — Excel, Access and Project — but it has yet to appear in Word or PowerPoint.

Sources close to Microsoft said users who are waiting for Microsoft to incorporate VBA across the entire Office suite will have to sit tight until Office 97 is released at the end of this year. A Microsoft spokeswoman declined to comment.

No translation

Although Word users can edit and create macros with Word Basic, VBA provides a common syntax across all other Microsoft applications to simplify the process of linking applications, according to Chris Le Tocq, an analyst at Dataquest, Inc., a market research firm in San Jose, Calif.

One user is eagerly anticipating a common scripting language.

"It's nice to know that one [scripting] language will eventually do everything," said J. Briscoe Stephens, the advanced scientific information systems coordinator at NASA's Marshall Space Flight Center in Huntsville, Ala., which has more than 4,000 copies of Office.

"Right now, we aren't doing much in the way of programming for Word because it's a pain in the butt. Who wants to learn to program and do something special for just one application?"

News Shorts

'net service providers wheel and deal, boost access

A wild week in the on-line world saw **America Online, Inc.** and **CompuServe, Inc.** strike agreements with a variety of players, notably **Microsoft Corp.** and **Netscape Communications Corp.** All sought to beef up access to the Internet and attract more consumers, which is good news for businesses that are trying to market goods and services electronically.

Sybase unveils OLE tool

Sybase, Inc. today will announce Object Connect for OLE, a tool designed to ease access from Windows applications to data in Sybase's SQL Server and SQL Anywhere relational database management systems. Without the product, developers must hand-code access routines, which is a time-consuming process, a spokesman said. Object Connect for OLE will cost $2,495 per developer and $1,495 per database accessed.

Microsoft upgrades C++

Microsoft has updated its C++ development system, adding support for the Internet and the World Wide Web. Visual C++ 4.1 will ship early next month. It will include Microsoft Foundation Class libraries for using the Internet Information Server, custom application wizards for the Internet server application programming interface and virtual reality modeling language. The update is free to Visual C++ subscription customers; it costs $499 for other users.

Digital to drop cluster bomb

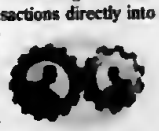
Digital Equipment Corp. next month will unveil its long-awaited clustering technology for high-end commercial servers that run Oracle Corp. database systems. Based on Digital's Memory Channel, a high-speed interconnection that lets two servers access each other's memory, the technology will improve the reliability of two servers set up to mirror each other's data.

It's all happening at the Zoo

Hitachi Software later this month will announce ZooWorks, a tool that lets users create personal indexes of the Web. ZooWorks is a Windows 95 application that runs alongside almost any Web browser and tracks which sites a user visits. It uses a search engine from Verity, Inc. to index the uniform resource locator and full text of every document visited. A free beta version of ZooWorks will be available March 25 at http://zoosoft.com. The software will be generally available within eight weeks after that. It will cost $39.95.

SAP, Microsoft in 'net pact

SAG AG is teaming up with **Microsoft** to create interfaces for funneling Internet-based business transactions directly into R/3 client/server systems. SAP will layer its R/3 applications on Microsoft's Internet infrastructure. A customer who uses Microsoft's Explorer browser software could electronically order from a Web-based electronic catalog linked to an R/3 system at the back end. Products are scheduled for year-end delivery.



HP tries to burst in on Sun

Hewlett-Packard Co. this week will announce Sunburst, a financial incentive program aimed at luring those who use Sun Microsystems, Inc.'s Unix servers to HP 9000 boxes. The incentives include a 20% discount on HP 9000s for customers who trade in their Sun machines to HP. Users also can take any other standard HP discounts for which they qualify, the company said. The offer is good through Oct. 31.

New Newton falls to earth

Apple Computer, Inc. unwrapped its latest Newton, the MessagePad 130. The refreshed personal digital assistant has a backlit, nonglare screen and adds an extra 512K bytes of system memory. It will ship next month. The new version will cost $799 and run Version 2.0 of Apple's Newton OS.

IBM's Eagle finally lands

IBM won't officially introduce its long-expected Project Eagle software servers until next week. But the computer giant began to ship some of the modular servers last week, and customer announcement letters that offer details about the servers were posted on its Web page. The products available now include transaction and communications servers for OS/2 and database and Internet connection servers for OS/2 and AIX. The servers bundle applications that previously had to be bought and installed separately.

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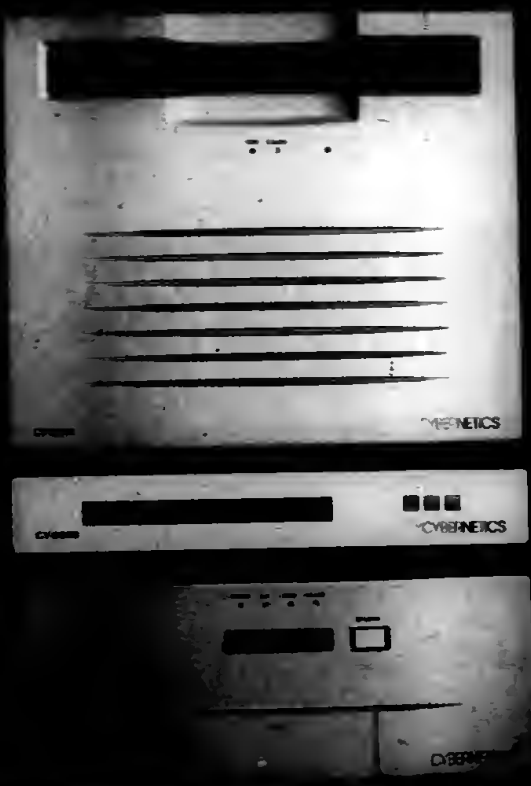

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The CY-9000 half-inch digital DTF drive is a breakthrough in performance that slashes backup and restore time while providing unsurpassed reliability and data integrity.

No other tape drive can match it.

* *Sentry Market Research*
** *All drives, except VHS, are available with data compression*

The cost of system time varies from site to site, but a recent study has put the cost of a medium sized PC LAN at ***$18,000 per hour*** — and the cost of a UNIX network at ***$30,000 per hour.**** Numbers like that make it easy to understand how a backup/restore solution that can do its job faster can save you serious money.

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Vendors add object power to Web

By Dan Richman

Object-oriented database management system vendors are shipping products designed to bring flat-file World Wide Web pages to life.

These products offer capabilities beyond those available from the mainstream relational portion of the DBMS market, users and analysts said. Those include the ability to handle complex relationships among data and distributed applications.

"Today, a lot of what's on the Web is just glorified pages of text. But video and audio are easier to store as objects," said Brad Jones, president of developer Information Sciences Group, Inc. in London, Ontario.

"Within two years, we will start seeing mainly corporate Internet applications made up of multiple pieces maintained on multiple servers in different locations, all being used together in what appears to be a single application on the user's desktop," said Hugh Bishop, an analyst at Aberdeen Group, Inc. in Boston. "Object technology will be crucial to this development."

Versant Object Technology in Menlo Park, Calif., today will announce a Java interface to its object DBMS. It is set to ship at no charge for Solaris SPARC by April 1 and for Windows NT by May 1.

Object Design, Inc. in Burlington, Mass., will release a Java interface by early fall. Another major object DBMS vendor, Objectivity, Inc. in Mountain View, Calif., hasn't announced any plans to support Java.

Versant also will announce today Internet Adapter, a free set of extensions to the Versant object DBMS. The vendor said the extensions will make any major vendor's Web server run up to five times faster. Set to ship by June, the extensions turn the Versant object DBMS into large cache.

Relational DBMSs also can work as proxy servers, but they are only now gaining the ability to manipulate video, audio and other complex data. Object DBMSs have always been well-suited to do that.

Versant user Electronic Data Systems Corp. in Plano, Texas, anticipates cutting modem users' retrieval delays from several days to several minutes when the Internet Adapter is used with its Media Vault multimedia storage system, said EDS product manager Rob Dyson.

Object Design today will announce ObjectForms, which lets Internet cruisers access data in the ObjectStore object DBMS. ObjectForms also can generate Hypertext Markup Language pages from ObjectStore data without programming. Available now on Windows NT and by May 1 on Solaris SPARC, ObjectForms will cost $3,500.

At least six commercial developers plan to release object-based Web servers to compete with Web servers from vendors such as Netscape Communications Corp., Oracle Corp. and Microsoft Corp.

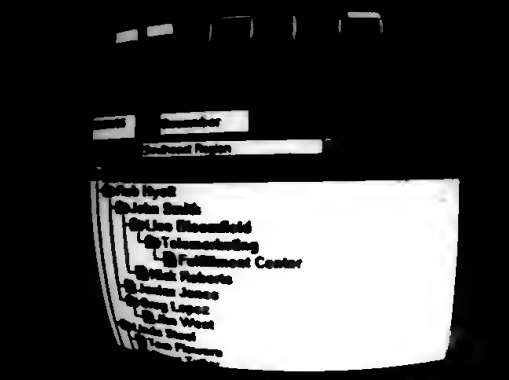
Object-ready

Object DBMS vendors contend that their products are best suited as Web or ancillary servers for the following reasons:

- Much of the data on the Web is audio or video, which object DBMSs were designed to handle — unlike relational DBMSs.
- Web pages are linked to one another in much the same way that object DBMSs already link objects to one another.
- Object DBMSs excel at handling distributed applications, pieces of which are scattered throughout a network but appear as a single, complete application to the end user. This frequently involves the use of an object request broker, technology the object DBMS vendors have helped create. — *Dan Richman*

Downtown, U.S.A.? Place-names database offers boon to some. See page 45.

"FINALLY, A WAY TO SEE MY SALES PIPELINE!"



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Firms offer help for unwieldy WANs

By Patrick Dryden

Relief is on the way for managers who need better tools to document and analyze their wide-area network connections, especially those connections based on frame-relay circuits.

Three vendors last week launched independent WAN management software packages that can handle diverse internetworking gear or environments.

Frame relay can improve performance and decrease costs, but many users need help to understand how much bandwidth their applications require so they will know how much to buy.

First things first

"Most users take the 'ready, fire, aim' approach: They implement frame relay, then try to figure out the proper bandwidth and adjust accordingly," said Tim Wilson, an analyst at Decisys, Inc., a network consultancy based in Sterling, Va.

To address this situation, Concord Communications, Inc. in Marlboro, Mass., last week expanded the WAN support of its Network Health performance reporting tool with a module that costs $8,995 on Unix workstations.

"This tool helps me leverage the existing bandwidth within my WAN budget and plan for future capacity needs," said Patrick Brennen, manager of network operations at Mercer Management Consulting, Inc. in New York.

Mercer Management Consulting's Patrick Brennen: *'I needed a way to explain our frame-relay activity to senior management'*

Network Health now polls the WAN every five minutes, compared with three times a day under the old setup. "This helps me understand frame-relay utilization in ways that I couldn't get from the carriers," Brennen said.

Other users need help tracking WAN links for faster troubleshooting of communication or performance problems.

Cambio Networks, Inc., formerly ISICAD, Inc., last week enhanced its Command software for documenting LAN/WAN connections.

Command 2.3 helps managers document networks from end to end, regardless of the equipment or circuits involved.

"Previously, we couldn't handle incremental speeds when we interconnected WAN equipment for American Airlines, but now we get a better picture of what facilities and speeds we are buying," said John Kurth, manager of Sabrenet systems engineering at Sabre Computer Services in Fort Worth, Texas.

StonyBrook Software, Inc. in Bohemia, N.Y., next month plans to unveil a WAN-overview capability for RouterManager/AutoBahn, its Windows-based tool for managing routers, bridges and switches.

WANServices Manager will detect, consolidate and map all connections — including frame relay, Integrated Services Digital Network and X.25 — provided by multiple vendors' gear, officials said last week.

Time out for Notes 4.0 upgrade

By Tim Ouellette
and Suruchi Mohan

Lotus handed the ball to Notes users by shipping Release 4.0 last month. But many say they will wait a while before they run with it.

"We are keen on getting Notes 4.0" for its improved performance and database replication, said John Hodge, chief information officer at NAC Reinsurance Corp. in Stamford, Conn.

But Hodge said he will wait until the third quarter this year to migrate because some of the insurer's Notes databases are workflow-enabled and tied to other systems.

Features abound

Notes 4.0 is the long-anticipated upgrade to Lotus Development Corp.'s Notes groupware.

But because Lotus crammed significant new features into the release, users such as Hodge recently told *Computerworld* they plan to take things one step at a time when upgrading their Notes network.

Among the features are a completely new interface, a new mail client, improved scalability, Web integration and a new scripting language.

Michael Kran, president of the Pacific Users Group for Notes in Oakland, Calif., said he expects to see many users migrate to Release 4.0.

They oughta know

Lotus was the first user to install Notes 4.0, so who better to turn to for migration hints?

1 Make sure to plan your whole process, then upgrade Notes servers. This includes the Notes Name & Address Book, which acts as the command center of the Notes environment. Lotus staged the server migration from noncritical servers to main hub servers when things were running smoothly.

2 Upgrade users' desktops. Notes 4.0 will let administrators send the upgrade to selected users as an E-mail message, so Notes support staff members don't have to manually install disks at each user's PC.

3 Migrate 3.x applications, including the E-mail environment. But don't migrate gateways or third-party applications until those are certified by their vendors. – *Tim Ouellette*

But Kran noted that typically there is a lag time between a major release and its adoption due to planning considerations.

Lotus' own migration to Notes 4.0 prompted the company to create a list of recommendations (see chart). Lotus also added a Release 3.x menu finder to Notes 4.0.

The finder lets users function as if they are in Notes 3.x and will show them how to do equivalent operations in Notes 4.0.

The extent of user applications often determines how quickly a network is converted to Notes 4.0.

Safety net

"Notes is such an integral part of our business; it's scary to migrate," said Patrick Hendry, chief technology officer at Thuridion Software Engineering in Scotts Valley, Calif.

The company plans to migrate in a few months, but it will stick with the Notes 3.x databases initially because it wants to migrate without any interruption in Notes-based work processes.

"I see us still having 3.x servers in place after the move [to 4.0] so people can still develop 3.x applications until we get a handle on everything in 4.0," agreed Missy McElwee, manager of Notes development at Sedwick & James, a law firm in Memphis.

Notes 4.0 servers will be backwards-compatible with Notes 3.x servers and applications.

Quarterly upgrades are planned, including a Notes 4.1 maintenance upgrade in April, according to the company.

Notes 4.2, slated for July, will contain more new features such as native server support for Internet protocols and calendaring and scheduling abilities, company officials said.

Lotus Notes performance hit

CONTINUED FROM PAGE 1

times of roughly a minute instead of seconds. A constant trickle of complaints such as this is coming from on-line forums, but Lotus has heard them directly, too.

"The top [complaints] that I've seen are still associated with NT," said James Grigsby, product manager for Notes at Lotus in Cambridge, Mass.

Because NT Server was designed as a file server, it must be changed and set up as an application server to get better performance out of Notes, Grigsby explained.

More memory

Grigsby said upgrading to NT 3.51 from NT 3.5, among other things (see chart), may help now that Microsoft Corp. has made improvements in the new server software version for such cases.

Armando Heredia, a systems programmer at Allendale Insurance, Inc. in Johnston, R.I., said the 30 Notes users at his company aren't having many problems running Notes off his NT 3.51 server.

But Heredia and another early user agreed that beefing up memory capacity is necessary to make Notes 4.0 run smoothly.

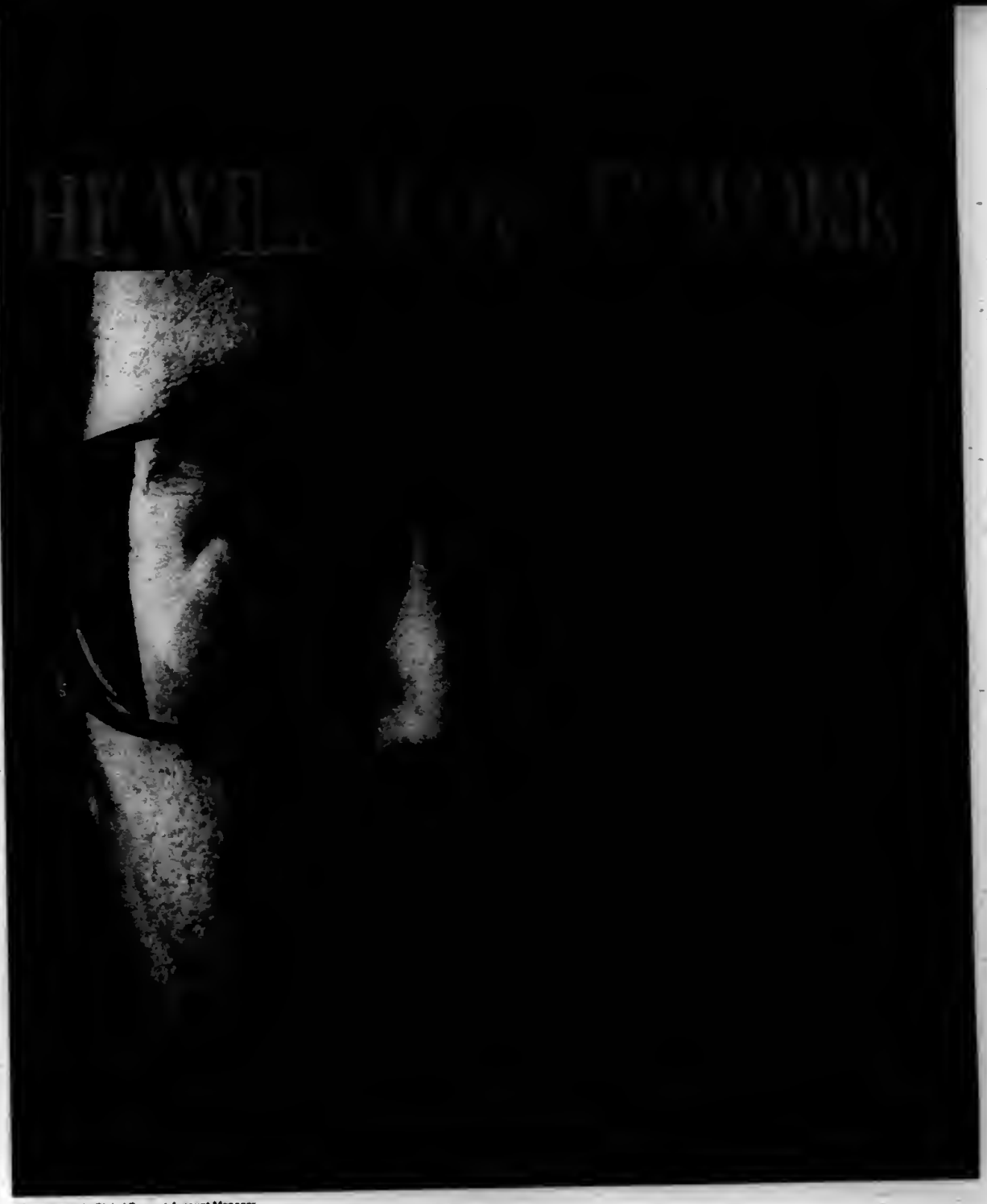
They said Notes 4.0 servers require at least 64M bytes to run smoothly, while Lotus recommends at least 32M bytes.

"If you give [Notes 4.0] enough memory, it will perform well, especially on the client side," said Jeff Held, a partner at Ernst & Young's Technology Services Practice in New York.

Upgrading hardware and adding memory will increase the cost of a Notes upgrade, but users who run Windows 95 or large productivity suites such as Microsoft Office have probably upgraded already, analysts said.

School of hard knocks

- Upgrade the processor because Notes servers use loads of processor resources
- Don't boost memory to more than 128M bytes because it won't significantly increase performance
- Use PCI network adapter cards with Pentium machines to keep processor overhead low when managing network traffic
- Don't create views in Notes databases that must constantly recalculate themselves and hog server resources



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Active X spells Java alternative

But Microsoft framework doesn't support Unix

By Kim S. Nash
SAN FRANCISCO

Java? It's just another programming language that fits into our grand plan for making object technology work over the Internet.

That was Microsoft Corp.'s message last week when it unveiled Active X at a developer conference here. It is a framework to let objects talk to one another over the Internet, regardless of whether they were built with tools from Microsoft or other vendors.

Active X is a series of application programming interfaces (API) that can activate Internet capabilities in new or existing OLE code. Plus, objects written in non-Microsoft languages — such as Netscape Communications Corp.'s JavaScript or Powersoft Corp.'s PowerBuilder — can also be included, if programmers write hooks into the Active X APIs.

Active X is essentially an envelope into which all kinds of objects can be tucked and activated in both World Wide Web and desktop applications. It will please Microsoft developers who wonder how to make their Windows and OLE products run on the Internet, said Dave Kelly, an analyst at Hurwitz Consulting Group, Inc. in Newton, Mass.

"These people were starting to look sideways at Netscape and give serious consideration to Java," Kelly said. "But Microsoft has [now] given them the on-line bricks and mortar they were looking for."

Most of the Active X technology is due with the next major release of Microsoft's Internet Explorer browser in mid-1996. But a developer's kit was given to the show's 4,500 attendees last week.

However, Microsoft's lack of support for Unix in the Active X scenario "is their weakest link," said Ira Machefsky, an analyst at Giga Information Group in Santa Clara, Calif.

New turf

That means Unix will probably become Netscape's turf, Machefsky said. "If you want to do Internet programming that supports everything from Windows to Unix, you will probably use Java," he said, including Netscape's JavaScript language.

SpyGlass, Inc. plans to fill the gap left by Microsoft by building Unix versions of Active X pieces.

Meanwhile, several third-party software makers pledged support for Active X. They include search engine maker Fulcrum Technologies, Inc. in Ottawa and application development vendor VMark Software, Inc. in Westboro, Mass.

NCompass Corp. in Vancouver, British Columbia, announced a translation utility that lets Microsoft Office documents — Word text or Excel spreadsheets — be viewed and edited inside Netscape's Navigator Web browser. It also supports Active X interfaces.

Senior editor Stuart J. Johnston contributed to this report.

More on Microsoft's Internet server. See page 64.

Objects on the 'net

Dozens of on-line locales hold information about Internet and object frameworks:

- A detailed tutorial about object-oriented frameworks was created by the Swedish University of Karlskrona at http://www.hk-r.se/ide/frameworks/frameworks.html. Information about the school's Frameworks Research Group is also at the site.
- For adding object technology to Web applications, the World Wide Web Consortium offers instructions on using objects with common gateway interface scripts. See http://www.geom.umn.edu/docs/wglit/wglit.html.
- The Object Oriented Page offers an extensive list of links to all kinds of object resources on-line. It's at http://galaxy.einet.net/galaxy/Engineering-and-Technology/Computer-Technology/Object-Oriented-Systems/ricardo-devis/oo.html.

To converse with colleagues on the topic, subscribe to a mailing list. Send a message to fwlist-request@chip.cs.olemiss.edu and put "subscribe" in the subject line.

Plans for Microsoft's Internet Information Server (IIS)

- IIS 1.1 will be bundled with Windows NT 4.0, which is due to ship this quarter. New features include the ability to manage the server through a Web interface along with the current version's Windows interface.
- The goal of IIS 2.0 is to appeal to Internet users. The product will have easier-to-use management capabilities, an index and search facility and ties to Internet Studio and FrontPage, Microsoft's Web development tools. IIS 2.0, which will ship in the fourth quarter, will also be integrated with Microsoft's BackOffice.

— *Kim S. Nash*

Pentium Pro PC server deluge is greeted by users

By Bob Francis

A slew of Pentium Pro servers from IBM, NEC Technologies, Inc. and Advanced Logic Research, Inc. were announced last week, and close rivals Hewlett-Packard Co. and Compaq Computer Corp. are slated to follow suit next month.

Users applauded the blitz. "We've been expecting to see these systems show up, and frankly, the prices look pretty good, though we'll have to see what's actually in there," said Phil Roszak, an advisory IS consultant for Aliant Foodservice, Inc. in Phoenix.

The flurry of activity has server market leader Compaq under the gun, facing its biggest challenges from a resurgent IBM and the emerging force that is HP's PC server group [CW, March 11].

Under $20,000

Particularly aggressive pricewise was IBM's PC Server 704, announced last week at the CeBit show in Germany. It starts at $18,995 for a single-processor model, which can be upgraded to four processors.

PC vendors began cutting server prices several weeks ago, hoping to clear out the reseller channels for the new Pentium Pro systems. "Price is a moving target in this market," noted John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

HP, for example, dropped prices up to 21% on its NetServer lines, and Digital Equipment Corp. in Maynard, Mass., cut prices on its Prioris PC server line by 20%. And though Compaq hasn't officially cut server prices, company officials conceded they are giving incentives to the dealer channel to clear out inventory. "We're going to do what we need to in the marketplace," said Michael Lambert, vice president for major accounts at Compaq.

Net result: Faster Web access

By Mitch Wagner

The Harvest Development Group plans to play an April Fool's Day prank on the Internet community — but in a good way. The start-up plans an April 1 release of software that will trick low-speed Internet connections into acting like they are high-speed hookups.

The Culver City, Calif., company plans to release Harvest WebCache, server software that makes copies of World Wide Web sites and stores them for easy access. The company envisions two uses for the caching software:

- Companies with low-speed access to the Internet, such as 56K bit/sec. phone lines, can store copies of their Web sites at their Internet service provider rather than locally.

That puts the site close to a high-speed connection, which improves access times. It is like a company with a big store on a small, country road opening a branch near a major highway.

- Workgroups with low-speed access to the Internet can use the software as a "proxy server," which stores copies of oft-accessed sites on a LAN server so more people can get at the sites faster.

Web servers

Eric Goldreyer, president of Inns & Outs, Inc., an Austin, Texas, company that publishes an Internet guide to bed-and-breakfast inns, said caching software performs a valuable service. "Anything that frees up bandwidth is ideal," he said.

Caching is a popular feature of Internet servers, which can be configured to store copies of Web sites locally and run as "proxy servers."

But WebCache supports the greatest amount of Internet functionality, said Carson Gaspar, a Unix developer at a major financial services company in New York.

The firm uses WebCache to give employees access to the Internet. Other caching software doesn't support features like "if-modified-since" queries, which allow software browsers to query a server to see if a page has been updated since the last visit.

Harvest Development Group

Culver City, Calif.
http://www.netcache.com
Product: WebCache
Starting price: $1,500

Caching software for storing copies of Web sites closer to the user for faster access

WebCache is also significantly faster than other caching software, Gaspar said. "Really, there aren't that many options out there," he said. "Most of the other ones are missing support for some protocols or they're performance pigs."

WebCache runs on common Unix platforms. Its price ranges from $1,500 to $5,000, depending on usage.

Major software developers jockey for font pre-eminence on the 'net. See page 67.

Low-cost, switch-based intranet package on tap

By Bob Wallace

Users at midsize and small sites soon will have an affordable single-package option for building high-speed intranets based on Ethernet switching.

Xedia Corp. in Wilmington, Mass., plans to offer software that will enable its Ethernet and Fast Ethernet switches to flexibly manage IP addresses and security firewalls.

IP/Assist software costs $195. Xedia switches — one of which is resold by internetworking power Bay Networks, Inc. — cost $400 to $700 per port.

Those two features are supported only on expensive central site switches. For example, Agile Networks, Inc.'s ATMizer costs $1,500 per port, but it also supports more protocols and offers more virtual LAN functionality.

Equipment needed

A user who wanted those features at a smaller site would need a $1,500 piece of network operating system software and $1,000 to $2,000 for a router with firewall capabilities.

"This is the first time these key intranetworking capabilities have been built in to a low-cost workgroup switch," said Skip MacAskill, a senior research analyst at Gartner Group, Inc. in Stamford, Conn. "The software enables the switch to do more than just push packets."

One Xedia customer said he likes the functionality of IP/Assist and is considering trying it out.

"We've given the Xedia switch rave reviews and are looking at the software because we like the functionality and the very low price," said David Brown, a network manager at the Marriott at Copley Place Hotel in Boston. "It's much less expensive than going with a larger switch, which we don't need."

Virtual LANs

In the next year, IP/Assist will let Xedia switches automatically create virtual LANs, which are logical rather than physical networks.

The IP/Assist software supports Dynamic Host Control Protocol (DHCP), a key utility that is supported as an add-on for stand-alone servers. The software simplifies the management of IP user addresses, which frees up staff time.

Before DHCP's availability, network administrators manually assigned a permanent IP address to every user. That was time-consuming and unwieldy.

Now, administrators can deploy DHCP to manage a pool of available IP addresses and automatically lease these addresses to end users as the addresses are needed. Once the wide-area network transmission is complete, DHCP automatically frees up the TCP/IP address for the next user.

The other key feature IP/Assist supports is firewall security that uses filtering. This means network administrators can restrict user access to computing resources.

IP/Assist, which will be continually enhanced during the next six to 12 months, initially will support rudimentary virtual LAN capabilities. Virtual LANs are logical rather than physical networks.

The Xedia software supports virtual LANs where membership depends on what port on the switch the user is connected to. Though its switches cost more per port, Agile's technology offers far more advanced virtual LAN technology.

IP/Assist only supports IP routing, but Xedia plans to add support for more protocols in the next six to 12 months. By comparison, the ATMizer supports Novell, Inc.'s IPX and Apple Computer, Inc.'s AppleTalk.

But the Xedia switches were designed for small and midsize sites, where users don't need full-blown systems chock-full of advanced features.

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Agents of change?

Insurance IS pros straddle bureaucracy, competitive demands

By Thomas Hoffman
NEW ORLEANS

Beneath multiple layers of bureaucracy and business processes circa 1970 beats the fearful heart of today's insurance industry.

And for scores of information systems managers gathered here last week at the Life Office Management Association's information management conference, those palpitations spell change.

Their companies face intense competition from mutual fund companies and other financial services players for coveted baby-boomer investments. But the idea of change — and taking high-tech risks such as object technology — remains about as popular as double indemnity.

"There aren't too many [insurance] companies that are willing to spend the kind of money necessary to do objects," said one attendee, an IS manager at a Midwestern insurer who requested anonymity.

Most insurers are just beginning to ramp up on distributed, graphical user interface (GUI)-based systems to become more responsive to customer needs. Even those efforts are at risk, as legacy-system-bound insurance shops will have to shift many of their resources to meet year 2000 date-change compliance (see box).

Rather than recasting their legacy systems with object technologies, most have followed what many attendees referred to as the "safer" Smalltalk and C++ routes.

USAA Life's Edwin L. Rosane *says a client/server system will 'allow us to build products quickly'*

One of the industry's early object pioneers, London Life Insurance Co. in London, Ontario, certainly has suffered its scrapes and bruises.

In 1991, the company began using Trinzic Corp.'s KBMS tool to "objectize" its IBM MVS, Digital Equipment Corp. VAX/VMS and PC-based Windows applications.

A bust

But after two years of development and nearly $500,000, KBMS turned out to be a bust. The development software was rigid, it chewed up too many PC resources, and the vendor didn't support it very well, said Sandro Palleschi, a senior consultant at London Life.

London Life has since shifted to Microsoft Corp.'s Visual Basic and Access object development kits to create GUIs and object repositories between its three-tiered architecture.

The payoff has been impressive because of object technology's slant toward method and object reuse. London Life was able to tackle 35,000-plus business "functions" last year, some 13,000 more than it had anticipated.

In addition, the insurer blew away its $550 cost-per-function target, coming in at $337 per function last year, according to Palleschi.

The view from above

But the top brass at other insurers are realizing that their organizations need to accelerate use of client/server technologies to remain competitive.

For example, Sun Life of Canada recently beat out eight other competitors for a $250 million-per-year contract with the Canadian government to insure up to 1 million civil servants. Sun Life was told that its solid IS infrastructure played a significant role in its selection, said John R. Gardner, president of the Toronto-based firm.

In the U.S., USAA Life Insurance Co. is about to roll out a set of 350 IBM DB2, client/server-based health, annuities and life (HAL) systems.

The HAL modules, which will go live starting April 1, are expected to decrease systems training time for end users by 75% and improve the productivity of processing large transaction volumes by 50%.

"This [policy and] administration system will allow us to build [insurance] products quickly," said Edwin L. Rosane, president and chief executive officer of the San Antonio-based firm.

Biting the bullet

Insurance companies are facing the looming threat of the year 2000 date change with a pained expression on their number faces.

Consider the story of Chubb LifeAmerica, which had the foresight to assign one of its analysts to do an impact analysis in mid-1994.

The analyst returned to his bosses with the news that it would take 256,000 person-hours to work through the firm's 20,000 programs. That would cost Chubb roughly $13 million. So the analyst was fired.

"We saw our careers flashing before our eyes," said Warren L. Reynolds, senior vice president of information technology at Chubb. "We knew senior management wouldn't buy in to this."

Chubb's Sandra M. MacIntyre *says some of Chubb's newer systems had the most significant date-sensitive problems*

But as the clock ticked away toward 2000 — when experts say millions of software systems could crash when computers interpret two-digit date fields as Jan. 1, 1900 — Chubb hired Cap Gemini America to do another impact assessment.

The New York-based consultancy not only supported the ex-analyst's conclusions, but it also found that some of Chubb's newer systems contained the most significant date-sensitive problems, said Sandra M. MacIntyre, vice president of IS at Chubb.

Chubb is using Cap Gemini software to calculate and scan every line of code on its systems. The software figures out which applications with two-digit date fields will incur problems and whether these systems will affect other applications.

This week, Chubb begins a pilot project of 100 to 200 programs that it will use as a benchmark for its other efforts, MacIntyre said. The pilot should be done by year's end, and the remainder of the firm's code should be revamped through 1998, Reynolds said.

And what became of the Chubb analyst who was fired? "He was recently hired back at higher pay," MacIntyre admitted. — *Thomas Hoffman*

Pentium Pros

CONTINUED FROM PAGE 1

ed with Windows NT.

"We are seriously considering doing this in the future. We are seeing a lot of momentum behind Windows NT in the desktop space," said Boris Elisman, worldwide marketing manager at Hewlett-Packard Co. in Palo Alto, Calif.

Others expected to take a similar tack are Compaq Computer Corp., IBM and NEC Corp.

A clear-cut product demarcation between Windows platforms will also allow vendors to tap the growing corporate interest in Windows NT with specifically targeted, relatively low-cost Pentium Pro systems that are optimized to run the 32-bit operating system, analysts said.

"NT on Pentium Pro is a killer combination" that vendors will leverage in the corporate sector as prices come down, said Martin Reynolds, an analyst at Dataquest, Inc. in San Jose, Calif.

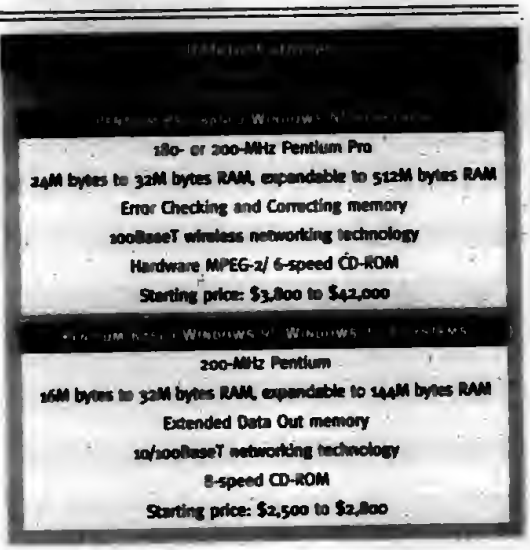
"Right now, Pentium Pro systems are still far too expensive. But we will consider them as soon as prices drop low enough to make sense to us," said Kevin Danahy, manager of workgroup application development at Millipore, Inc. in Bedford, Mass. The company plans to deploy Windows NT-based Pentium Pro systems in "high-end application areas," according to Danahy.

Already, a number of vendors, including Compaq, IBM and HP, offer Pentium Pro-based Windows NT systems, which they have sold mainly in niche market applications areas such as computer-aided design and manufacturing and engineering.

Users can get a fully configured, 166-MHz Pentium-based system for about $3,500. A 200-MHz Pentium Pro-based Windows NT machine costs more than $5,100. By the end of the year, Pentium Pro prices will have fallen low enough for vendors to sell the same system for about $3,800 to $4,000, analysts said.

For some users, the impending price cuts will make upgrade decisions easier. "We generally always upgrade to the latest technology. With this kind of s price point, the leap will not be so great," said John Williams, MIS manager at Priority Pharmacy, in San Diego.

Senior editor Stuart J. Johnston contributed to this report.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- 13 Treasurer, Controller, Financial Officer

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- 70 Medical, Legal, Accounting Mgr.

OTHER PROFESSIONAL MANAGEMENT
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- 90 Other Titles/ Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)

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- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
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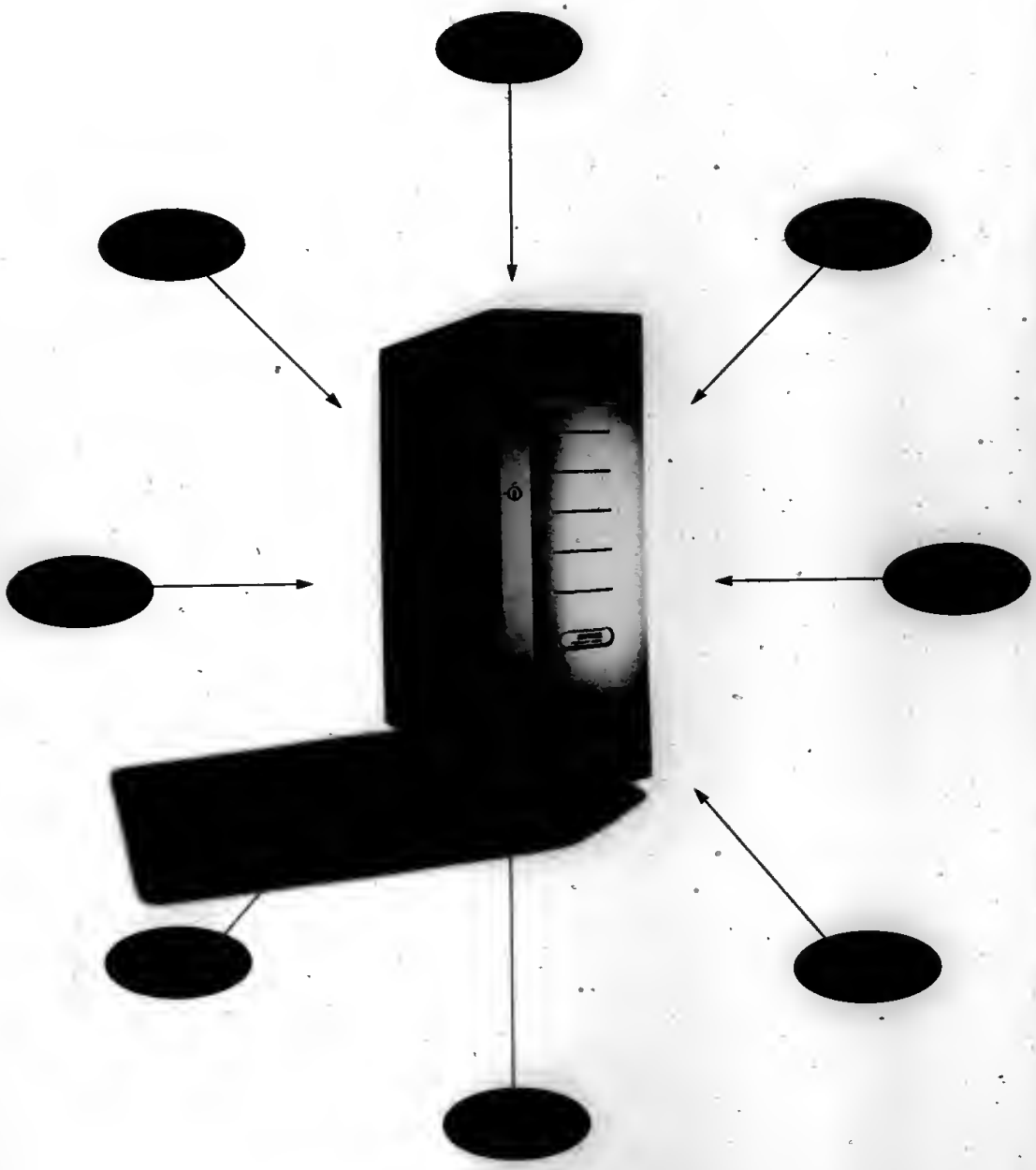

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COMPAQ

Has It Changed Your Life Yet?

HP tries to jump-start Exemplar

PA-8000 will juice up parallel processor box threefold

By Craig Stedman

Hewlett-Packard Co.'s salvage operation at the former Convex Computer Corp. starts in earnest this week with the introduction of a speedier version of Convex's Exemplar technical parallel processor.

But the real push will come in the second half of this year, when HP plans to ship a new Exemplar system based on its 64-bit PA-8000 microprocessor. Analysts said that should finally give Exemplar enough power to make it a competitive machine for HP, which bought the rapidly fading Convex in December and turned it into a development center (see chart).

The PA-8000 version of Exemplar is expected to be called the SPP2000. Sources said peak performance should exceed 700 million floating-point operations per second (MFLOPS) per processor, compared with about 235 MFLOPS on current models based on HP's PA-7200 chip.

HP lags behind rivals such as Silicon Graphics, Inc. and Digital Equipment Corp. on floating-point performance now. But the PA-8000 would move Exemplar to the upper echelon, according to industry sources.

Exemplar "has been kind of a second-tier player" since it shipped in 1994, said Jeff Liebl, an analyst at Smaby Group, Inc. in Minneapolis. The product's relatively weak performance and Convex's financial problems scared software vendors away from reworking their code to take advantage of the product's parallel capabilities, he said.

The Exemplar SPP1600 being announced this week quadruples the amount of cache memory on each processor and adds a Peripheral Component Interconnect bus to handle I/O operations. HP said that should improve application performance on the system by up to 60%.

But Convex already gave a midlife kick to the current Exemplar design last year, "and this seems like another one," Liebl said. "I think a lot of customers are going to wait on the sidelines [for] the PA-8000."

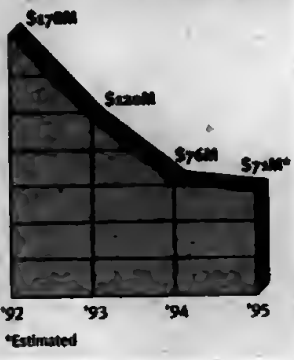
The University of Kentucky in Lexington is one Exemplar user that will pass on the SPP1600 unless the university can get grant money to pay for an upgrade, said Rick Chlopan, director of technical services at the school. The university is hitting the performance wall with its 32-processor Exemplar, but its budget won't allow for another purchase until next year, according to Chlopan.

Paul Bemis, marketing manager for technical servers at HP's Workstation Systems division in Chelmsford, Mass., confirmed that the 64-bit hardware is scheduled to appear in the second half of this year. He declined to comment on the anticipated throughput.

Exemplar uses a global shared memory to make the system look like a symmetric multiprocessor to programmers. It runs a microkernel-based operating system with a layered HP-UX personality that provides compatibility with applications written for HP's mainstream Unix.

Free falling

Convex's annual product revenue



Source: Smaby Group, Inc., Minneapolis

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Is there ever a

Support for IS.

Support for system administrators begins with support for end users. With its simplified interface, Windows 95 allows users to work far more independently than in the past. Simply put, the greater their autonomy, the less time you spend answering obvious questions.

But it's not just the interface that's improved; the whole system is more reliable. Thanks to the 32-bit protect-mode components of Windows 95, users can run multiple applications at the same time, without running out of system resources or freezing up their PCs. The same is true even if a network server goes down. And, with 32-bit applications now able to run in their own memory space, the likelihood of one app crashing another is almost nil.

Finally you can turn the desktop into the most tangible technology investment your company can make.

What's the upshot of all this? Well, it won't exactly turn you into the Maytag repairman, but it can cut helpdesk calls by 7 to 14% a year.[1]

Still, in designing a new OS, we realized that to make things easy for the end-user at the expense of the IS department would be self-defeating. And to that end, Windows 95 offers a variety of powerful tools to help you better manage your network and your time.

Built into Windows 95 are a number of tools to simplify administration. 32-bit versions of popular network clients, like Novell® NetWare® are included, as is support for standard transport protocols like TCP/IP and device standards. Plug and Play support detects hardware devices as they are added to the system, which makes installation a snap. And, with Server-based Setup and Batch Setup tools, it's now possible to install and configure Windows 95 on multiple desktops from a server. Automatically.

Once you're wired, you can monitor performance and troubleshoot problems from a central location.

More support: more control.

System Policies in Windows 95 allow you to specify system settings and restrict network access and security privileges from a central location. So you can lock down desktop configurations whenever you see fit. And with User Profiles, individual users' desktop configurations are available wherever they log on to the network. This lets multiple users share one computer and "roving" users log on to other networked computers, while maintaining their own personal settings.

Again, with Windows 95, all of this can be done from a central location, reducing the number of on-site visits by 30 to 50%.[2] At last, you'll be able to focus on the big-picture stuff. So the next time someone asks you what's what with this Internet thing, you can say, *I have a plan.*

Productivity from the word *Start.*

The improved interface in Windows 95 makes nearly everything easier for novice and advanced users alike. Its Start button and task bar make applications more accessible. Long filenames make identifying files easier. Better tools such as Wizards and improved Help make learning features easy. Its right mouse button puts common commands a click away. And now that the separate Program Manager, File Manager, and Print Manager are gone, there are fewer concepts to learn. This makes for able, autonomous, and, dare we say, happy end users. People who require less training and support. Who, in short, can turn the desktop into the most tangible technology investment your company can make.

But Windows 95 isn't just easier, it's more responsive. Basic operations, like printing or accessing a file on a PC or over a network, are faster. And with its 32-bit multitasking capability, users can conduct file searches, online communications, or other tasks all while, say, editing a document. In fact, studies show that once users are familiar with the new OS, they're able to accomplish many tasks in about half the time it took under Windows 3.1.[3]

Of course, no one spends their entire day tooling around in their operating system. People have work to do. With that

1. Technology Business Research, Inc., a market research firm, collected and analyzed the helpdesk logs of 10 Fortune 100 companies in order to project the impact of Windows 95 on call avoidance, problem resolution, and on-site call reduction. The logs represented 100,000 PC users and 1.5 million helpdesk calls per year. 2. Technology Business Research, Inc. 3. To quantify the learning curve from Windows 3.1 to Windows 95, and evaluate user productivity on Windows 95, Usability Sciences Corporation, an independent usability testing organization, had 75 beginner, intermediate, and advanced Windows 3.1 users complete tasks with both operating systems. They found that users were 91% more productive with Windows 95, and 94% more accurate. Tasks performed included: finding and opening files and programs, copying and moving files, and switching between active programs. 4. The MASIE Center, a recognized software training center and think-tank found that only one hour of briefing and

The prevailing wisdom and why, this time, you should ignore it.

Common sense tells you to hold off on making the move to Windows 95, to wait until someone else finds the bugs. Well, someone else already has. With the largest beta program in history, Windows 95 was installed on more than a million desktops worldwide. Now, just six months into its commercial release, thousands of organizations are in pilot and rollout. And to keep them current, we've put together an online Service Pack with the latest drivers and other new components. In short, the dreaded "1.0 version" has already come and gone.

in mind, no evaluation of Windows 95 would be complete without simultaneously evaluating some of the 32-bit applications designed for it, such as Microsoft Office for Windows 95.

Now users can focus on their work instead of their software.

Office 95 is more than just fresh features on top of Office 4.x. It's a deeply integrated suite of applications. Intagrated, both with the operating system and with each other. Because users can leverage their knowledge of one application throughout the entire suite, they need only three hours of training to be affective in all of them.[4] Needless to say, this can dramatically reduce training costs.

But what about support? While it's one thing to get PC users up and running, it's quite another to teach them all the skills they'll ever need. And of course, you can't; users simply aren't interested. (Remember? They've got work to do.) Knowing this has made all the difference in designing Office 95. It's resulted in advances such as the Answer Wizard, which lets users ask the computer plain English questions like, *How do I print sideways?*, and then shows them exactly how to do it. As a result, you can expect a 48% reduction in Office-related help calls.[5]

With Office 95, users are not only able to work on their own, they're able to accomplish more things faster. Labor-saving features such as updated AutoFormat and Spell-it in Word, and enhanced AutoComplete in Microsoft Excel, not only render everyday tasks automatically, they do so accurately. According to Kelly Services, the folks who train and supply corporations with over 325,000 office professionals each year, users complete their tasks 37% faster with Office 95. And they're 36% more accurate in doing so.[6] Not a bad day at the office.

Why sooner is better than later.

If, as the headline says, there's never a good time to migrate, why make the move now? Why? Because deployment takes time. Product reviews, network configurations, lab tests, pilot programs, rollout — it takes time. And if the goal is to decide *Is it worth it?* and you continue to put off serious evaluation, it'll be that much longer before you begin to realize the productivity gains and cost savings that Windows 95 and Office 95 have to offer.

But let's assume you upgraded today. How long would it take to recoup your migration costs? According to a leading consulting firm, Office 95 will pay for itself in 10 months in medium-sized companies, and 12 months in large organizations.[7] Factor in the increase in end user productivity, and those numbers fall by nearly half.

No question about it, the move to 32-bits is a big one. But as part of the larger evolution in chip architecture, hardware platforms, and application support, it's not one that you or Microsoft is making alone. Won't you join us?

Windows 95 or Windows NT™ Workstation? Yes.

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two hours of self-discovery were required to migrate Office 4.3 users to Office 95. 5. Technology Business Research, Inc. 6. Kelly Services, Inc. conducted a controlled usability study of 35 employees who regularly use Office 4.3. Participants were measured for speed and accuracy in completing commonly performed tasks. 7. International Data Corporation modeled the expected returns on investment of Office 95 for large companies (1,000+ PCs) and for small-to-medium companies (100 PCs). On a cost-to-use basis, large companies will see their investment paid for in 12 months, small companies in 10. On a value-to-use basis, those figures drop substantially: 4.8 months for large companies, 5.3 months for small. © 1996 Microsoft Corporation. All rights reserved. Microsoft, Windows and Win32 are registered trademarks and Windows NT, the Windows Start logo, and *Where do you want to go today?* are trademarks of Microsoft. Novell and NetWare are registered trademarks of Novell, Inc.

NPI attacks Fast Ethernet market

By Bob Wallace

It's a classic case of David vs. Goliath. And the winner is the corporate user.

That was the case last week when Network Peripherals, Inc. (NPI) entered the Fast Ethernet market with what analysts are calling the broadest line of products that support 100M bit/sec. Ethernet technology to date.

"There's no doubt that NPI offers every type of Fast Ethernet product a user could want and at prices that are extremely competitive," said Skip MacAskill, a senior research analyst at Gartner Group, Inc. in Stamford, Conn.

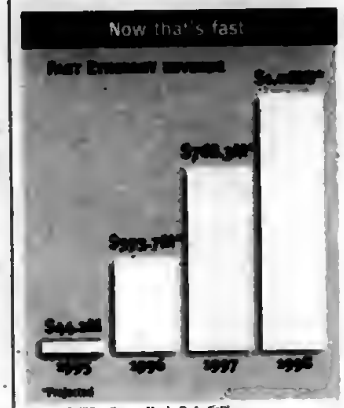
The Milpitas, Calif., upstart is taking on established giants such as Intel Corp., Bay Networks, Inc. and Cisco Systems, Inc. These companies have Fast Ethernet products but offer fewer choices. The NPI boxes, in some cases, are several hundred dollars cheaper than those of the competitors and use the same technology.

Fast Ethernet products can help information systems managers clear network traffic jams by providing switched 100M bit/sec. bandwidth to break 10M bit/sec. bottlenecks.

To deploy Fast Ethernet, users need to swap existing adapter cards and hubs for Fast Ethernet models. Those cost roughly 1½ times more but provide 10 times the bandwidth. The bandwidth boost can ease congestion around heavily used servers. It also can help link lower-speed Ethernet hubs, although the pipes can be directed to the desktop for the most data-intensive applications.

Ports aplenty

"We had all our users trying to access [computer-aided design] applications on a server through regular Ethernet hubs, but the response time was slow, and there were lots of data collisions on the pipes," said Jim Musso, a systems administrator at CDI CAD Services in Tempe, Ariz. "But once we added the hub with the Fast Ethernet [uplink], those problems went away."



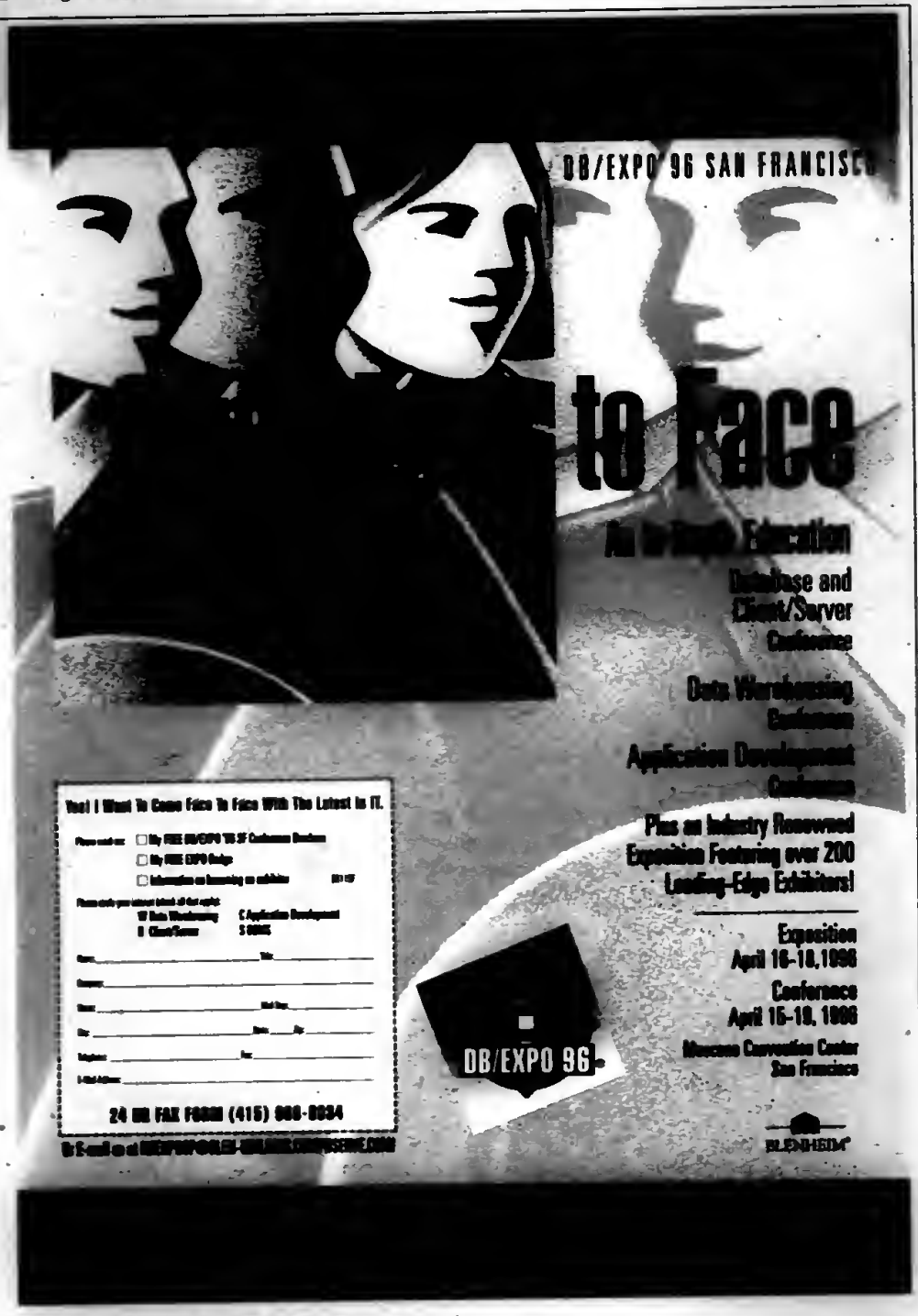
Source: Dell'Oro Group, Menlo Park, Calif.

CDI has plugged six 16-port Ethernet hubs in to NPI's switch and connected its server to the 100M bit/sec. port in the back of the unit.

NPI has detailed plans for 11 Fast Ethernet hubs and a $165 Peripheral Component Interconnect adapter card. The company offers three switches with one, five or six Ethernet ports. Each switch has one Fast Ethernet port. The switches cost $695, $1,595 and $2,995, respectively.

On the high end, NPI announced two hubs; one with eight Fast Ethernet ports, which costs $1,195, and one with 12 Fast Ethernet ports, which costs $8,995.

The vendor is shipping three of the hubs, and the rest are due by June.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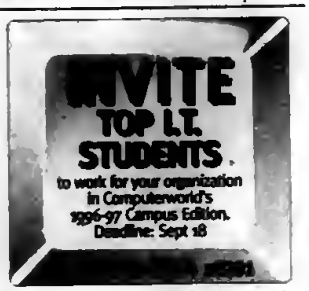

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A few thoughts about motivation and UNIFACE application-building strongware from Jim Rutherford, Assistant General Manager, Hartford Whalers

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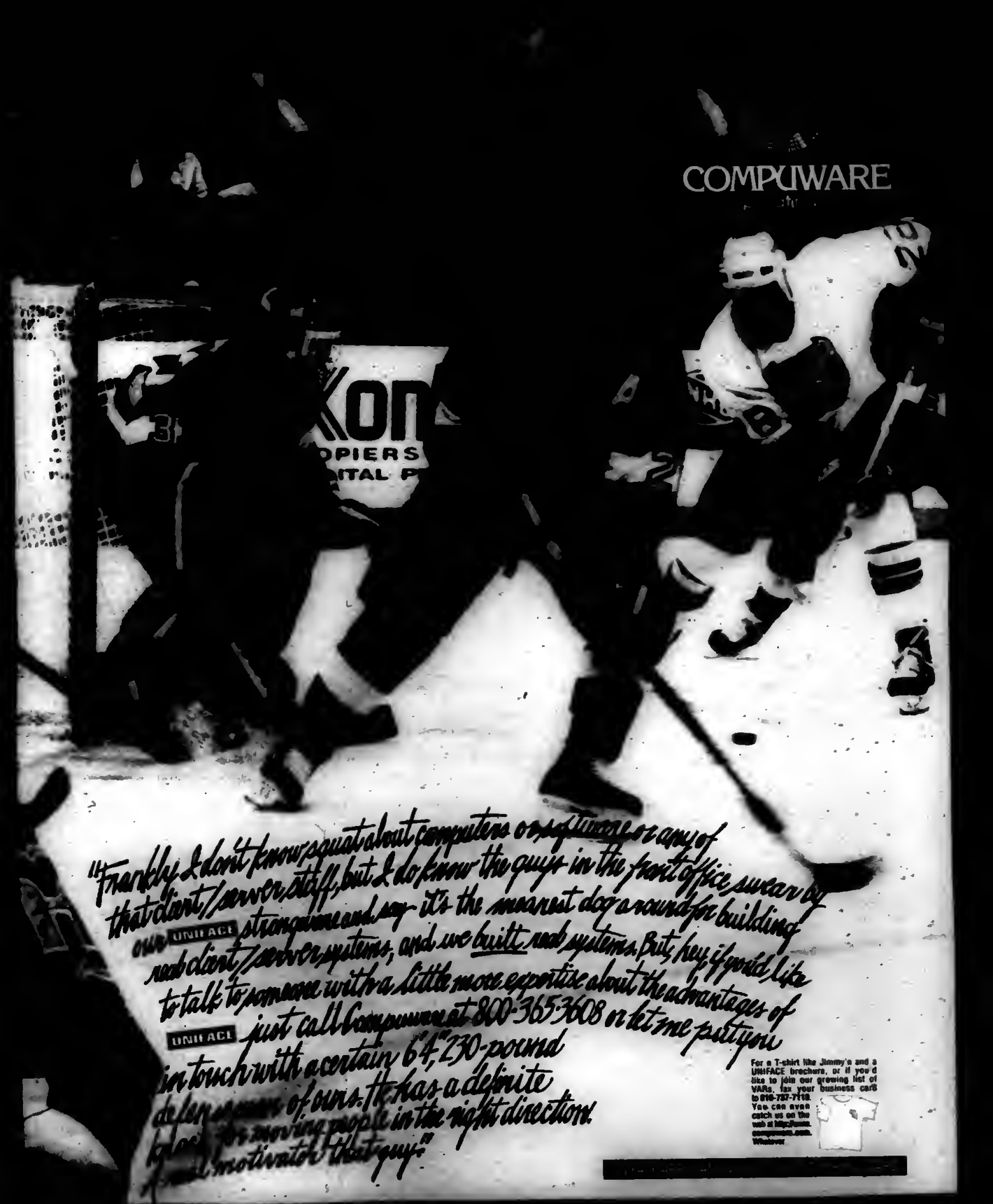

"Frankly, I don't know squat about computers or software or any of that client/server stuff, but I do know the guys in the front office swear by our UNIFACE strategy and say it's the smartest dog around for building real client/server systems, and we built real systems. But, hey, if you'd like to talk to someone with a little more expertise about the advantages of UNIFACE just call Compuware at 800-365-3608 or let me put you in touch with a certain 6'4", 230-pound defenseman of ours. He has a definite flair for moving people in the right direction. He's a real motivator that guy."

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Promises and perils on the information highway

By Gary H. Anthes
WASHINGTON

The information highway may be described by some as the information "hypeway," but a committee of the National Research Council (NRC) last week said the Internet eventually will outstrip the most bullish growth projections.

Even so, in a recent report, "The Unpredictable Certainty: Information Infrastructure Through 2000," the NRC cautioned that the National Information Infrastructure (NII) — which includes the Internet and other communications media such as cable TV — will evolve more slowly than many people expect, for several reasons. They include the following:

- Insufficient investment in the communications infrastructure.
- Users who aren't aggressively developing the applications they need.
- The growing difficulty for the standard-setting Internet Engineering Task Force (IETF) to represent users who are constantly growing more diverse.

Growth industry

There are 9.5 million registered hosts attached to the Internet, and that is increasing at an annual rate of 85%. A larger number of hosts are attached but hidden behind firewalls. There are 75,000 World Wide Web servers, and they are increasing at an annual rate of 2,400%.

Source: Mark Lottor, Network Wizards, Menlo Park, Calif.

The NRC report said the slow pace of Internet development stems from a number of causes, including service providers' reluctance to build capacity for which there is no guaranteed demand and a "disconnect" between users and service providers. This is partly due to users such as manufacturers, health care organizations and educators, which have done a poor job of articulating their needs, the report said.

Other users are concerned about performance and reliability issues, the report said.

"There are some [users] who think someone is going to design the applications for the NII [from the top down] and just put it out there," said Charles Brownstein, executive director of the Cross-Industry Working Team in Reston, Va., a coalition of firms developing a technical vision for the NII.

Do it yourself

Brownstein said users should work on their own applications, just as many companies are setting up World Wide Web servers. "Don't think of the NII as products, think of it as infrastructure" to build on, he advised.

Meanwhile, the NRC report said the Internet can't continue to flourish without very substantial investments in its physical communications infrastucture. "The greatest uncertainty is how much [will be invested] in the medium term, the five- to seven-year horizon we looked at," said David D. Clark, a member of the NRC committee.

Users are clearly concerned. "We are doubling the [volume of data] packets every three to four months, and we are on the ragged edge of control," said Michael Roberts, networking vice president at Educom in Washington, an association of information systems specialists at colleges and universities.

But Roberts said companies are creating their own Internet capacity by building corporate intranets. "It's these intranets that are saving us from some degree of meltdown," he said.

The NRC report raised a red flag but made no recommendations about the Internet standards process. The process is becoming "balky" and "balkanized," according to the council.

"The IETF is cumbersome and slow, but it's still far faster than any standards process devised by the telecommunication community," Brownstein said. "It can work as long as it remains independent."

Info highway potholes

Concerns about the future of the NII include the following:

The Internet cannot continue to flourish without substantial investments in the physical communications infrastructure.

The Internet standards development process is under stress, with developers removed from an increasingly diverse body of users.

Users in big application areas such as manufacturing, health care and education believe technology is driven more by "vendor push" than by "user pull."

Users are worried about technology issues such as capacity, interoperability, ease of use and security.

Source: Computer Science and Telecommunications Board, National Research Council, Washington

Stratus targets 'net commerce with entry-level Unix server

Fail-safe Continuum series keeps vendor in play

By Michael Goldberg

Stratus Computer, Inc. is continuing a drive it started last year to move into new market areas, including the Internet, by adding an entry-level Unix server to its fail-safe Continuum family.

The Continuum 400, with prices starting at $65,700, becomes the low end of a product line that includes the midrange Continuum 600 and the higher-end Continuum 1200 series of symmetrical multiprocessing (SMP) servers.

And following other vendors into the Internet pool, Stratus will let users outfit the Unix-based Continuum 400 with Internet server software from Open Market, Inc. for electronic commerce applications. Stratus doesn't plan to make the Internet software available for its proprietary VOS operating system, according to CEO Gary Haroian.

Stratus announced last fall that it was getting into the LAN server business with a system called Radio based on Intel Corp. chips.

Market melee

These are mandatory moves, analysts said. The Marlboro, Mass., company faces competition from traditional rivals such as Tandem Computers, Inc. that provide hardware fault tolerance. Stratus also must match up against Unix server vendors that promise various levels of crash-resistant systems.

"They have had tremendous pricing pressure for a long time," said analyst Jim Johnson, chairman of The Standish Group International, Inc. in Dennis, Mass. Johnson said Stratus was in danger of becoming a "totally uncompetitive" niche player.

Rolling out the Continuum 400 series should help the company, especially with Stratus' traditional customer base of telecommunications and financial firms, said Jay Bretzmann, an analyst at International Data Corp. in Framingham, Mass.

The Continuum 400 servers will be available in June at $65,700 for a uniprocessor model with full hardware backup. They will also come in a two-processor SMP version.

The Continuum machines use Hewlett-Packard Co.'s PA-RISC 7100 microprocessors and run on Stratus' FTX version of the Unix operating system. Stratus plans to sell versions of these servers that run on its VOS operating system in early 1997, company officials said.

At Herzog Heine Geduld, Inc., a stock trading firm in Jersey City, N.J., that has long used Stratus products, information systems manager Simon Sarofsky said Stratus "is putting out a couple of nice new products": the new low-end Continuum models and the Radio LAN server. But "they have to bring their price points down and still maintain reliability," he added.

And analysts said Stratus faces a big challenge if it wants to grow beyond its base. As more business applications take on the "mission-critical" label, companies looking at hardware purchasing decisions often choose less costly Unix servers from HP or Sun Microsystems, Inc.

Paying attention

Last September, Stratus fell off the computer-vendor charts after disappointing earnings and disappointing sales.

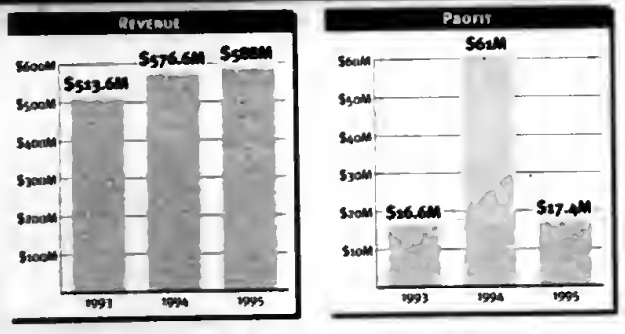
In position

Haroian said he is confident Stratus can build revenue by marketing the new Continuums and the Radio LAN servers to companies that build applications around the Internet and client/server systems.

"We're in very good shape to capture an emerging growth spurt that's occurring in the marketplace, as users try to move mission-critical and business-critical applications into a distributed computing environment," Haroian said.

"There's going to be a lot of growth in electronic commerce kinds of applications, and this is an area where Stratus has a lot of credibility," he added.

Stratus Computer



Parallel systems are getting a shared-memory look. See page 39.

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(d) Unix (h) NeXTstep
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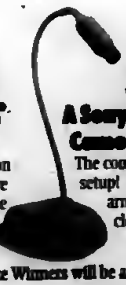

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1. What now popular industry term was coined by Jaron Lanier?
2. What Broadway show was the first to use computer controlled lighting?
3. What prominent Soviet computer designer was hired by Sun Microsystems in the early 1990's?
4. What well-known computer personality purchased the Leonardo DaVinci *Hammer Codex* at auction in 1994?
5. What company created the computer-aided special effects of the 1994 movie *The Mask*?

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Key #10750

Computer Industry

AT&T spin-off files largest IPO ever

By Randy Weston

Lucent Technologies, Inc. filed the largest initial public offering (IPO) in U.S. history last week, as the AT&T Corp. spin-off laid the groundwork for a well-heeled assault on the networking hardware and software markets.

Telecommunications equipment

Lucent's offering of 111 million shares is expected to bring in more than $3.1 billion in fresh cash, which the company will use to expand its lines of business and enter new ones, such as wireless products and Asynchronous Transfer Mode (ATM) switches.

AT&T is spinning off Lucent because the parent company realized that potential customers of telecommunications equipment, such as other long-distance carriers and regional Bell operating companies, were reluctant to buy from a direct competitor, said Allan Sulkin, an analyst at TEQConsult Group in Hackensack, N.J.

Becoming an independent company creates "great potential for them to get into high-growth markets," Sulkin said.

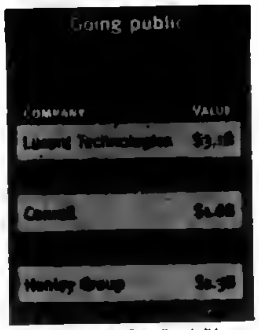
On Lucent's first day as a separate entity, it will be a $20 billion giant that is No. 1 in public networking equipment and No. 2, behind Siemens AG in Munich, Germany, in private networking gear, according to Sulkin.

In filings with the Securities and Exchange Commission, the company said it intends to focus on developing equipment for wireless networking and systems capable of handling voice, data and video communications, while continuing its focus on networking software.

Motivated researchers

Under terms of the AT&T breakup, Lucent retains the vaunted Bell Laboratories research organization, which could bode well for the future. "Now all those guys at Bell Labs have a financial incentive to come up with new products and not to just research products," said industry analyst Howard Hecht, a principal at Decisys, Inc. in Sterling, Va.

"We have a lot [of ATM switches] out there but not very good ones. If [Lucent] can take its network software technology and graft it on to a high-performance ATM — boom! They're in."



Source: Securities Data Corp., Newark, N.J.

Lucent still faces hurdles in its race against the likes of Siemens, Nortel, Inc., Alcatel Alsthom, Ericsson Telephone Co. and Motorola, Inc.

Lucent's leaders "will have to choose their battles carefully," Hecht said. "They seem to have been able to limit their purview. People were concerned [that] they would try to be the equipment supplier for everything. But they seem to be willing to take the PBX business and turn it around."

David Regan, voice communications specialist at Detroit-based Michigan Consolidated Gas Co., isn't expecting many changes from AT&T after the split, but he said he will be keep an eye on what Lucent comes up with on its own. "We're not going to really see a big difference," he said. "They're standing behind their products, but they have a long way to go to penetrate the market. They need to be patient."

Hecht and Sulkin agreed that Lucent's biggest challenge may be boosting its weak marketing efforts.

D&B Software reassures users

No buyer, but products on track

By Julia King

As Paul Newman found out in the movie *Cool Hand Luke*, a failure to communicate can be fatal.

That is why a struggling Dun & Bradstreet Software recently summoned 50 of its largest customers to Atlanta for an update on where the vendor stands since it was put up for sale on Jan. 9.

Executives promised users that new products and enhancements would continue to roll out on schedule. These include summer releases of SmartStream for Microsoft Corp.'s SQL Server 6 and D&B Software's enterprise workstation product, a graphical user interface to its mainframe software.

What wasn't forthcoming was word of a new owner, and analysts don't seem optimistic.

Meanwhile, the meeting two weeks ago was in no way a means of staving off defections by jittery customers, company officials said. Rather, it was "a continuation of a proactive plan to address customers' concerns," said Craig S. Richardson, vice president of sales and marketing.

"Our product plans haven't changed," he said.

Indeed, "We were assured there would be continued research and development on the product," said John Dawson, a vice president of manufacturing at Cleveland-based Owens-Illinois Corp.

User Dick Hudson isn't worried — yet — that D&B Software hasn't found a buyer

Late last year, the $3.7 billion plastics and packaging manufacturer purchased D&B Software's SmartStream financial and manufacturing software to use throughout the 56-plant company. "The bottom line is that it was reassuring, but we're still keeping a careful watch on what's going on," Owens added.

So is D&B Software user Dick Hudson, chief information officer at Global Marine, Inc., a $500 million offshore drilling company in Houston.

For now, Hudson says D&B Software's status as a company without a buyer "is not a source of great concern." He said technology stocks are volatile and added "it would be hard to sell a software company in 30 days or so."

"But if you called me back in August, I'd [have been] concerned," Hudson said.

Analysts contend that D&B Software aggressively shopped itself around even before its official Jan. 9 spin-off from Dun & Bradstreet Corp. but couldn't find any takers.

With no buyers on the horizon, the $350 million software maker is now said to be aggressively courting venture capital investment.

"The difficulty a venture capitalist would have with D&B is there's a huge expense base compared to a start-up. It's not a conventional venture capital opportunity. It's larger, with more baggage," said Jim Duggan, a technology analyst at First Albany Corp. in Albany, N.Y.

Even so, an optimistic CEO Doug McIntyre last month outlined plans to hire 100 software developers and invest approximately $70 million in new products this year.

Bill Gates

Today, it's developers turning to help desks

By Bob Francis

The days of the isolated, Maytag repairman-style help desk may be numbered. That's because help desk vendors are being courted by systems and network management developers that want to integrate help desk capabilities into their systems.

For example, McAfee Associates, Inc. in Santa Clara, Calif., recently acquired a help desk provider, and rival Tivoli Systems, Inc. is adding a slew of modules designed to link various help desk vendors into the Tivoli Management Environment (TME).

Those partnerships aren't likely to be the last because several other help desk vendors are in talks with network management suppliers such as Symantec Corp. and Seagate Technology Corp.'s software group, analysts and industry officials said.

Meanwhile, the systems management vendors want to link help desks and their databases into management consoles so information systems managers can keep apprised of increasingly complex network problems, according to Jack Gold, an analyst at Meta Group, Inc. in Boston.

"As these networks continue to grow, [IS] needs to know where the problem areas are from several different sources — a key one being the help desk," he said. By integrating or providing access to the databases of the help desks, network managers can better monitor their networks and applications, he said.

Another acquisition

Earlier this month, acquisition-minded McAfee snapped up Vycor Corp., a growing help desk provider in College Park, Md., for $9 million. Both Vycor's software and McAfee's SaberTools PC network management tools are built around SQL databases, which will make it easy to integrate the two lines, McAfee officials said.

Last week, Austin, Texas-based Tivoli added three Tivoli/Plus modules to integrate help desk products with the firm's TME systems management product. Earlier this year, Tivoli added support for Remedy Corp.'s AR System help desk. The three new modules are for Clarify, Inc.'s ClearSupport, Peregrine, Inc.'s Service Center and Scopus Technology, Inc.'s Scopus Help Desk. The TME modules let systems administrators deploy and manage help desk applications through TME.

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COMPUTERWORLD

·Leadership Series·

Evaluating the CIO

Just what is the chief information officer's role? Many CEOs cannot answer this question. Indeed, even CIOs have difficulty. If you are a CIO, or if you work with one, here is your opportunity to test your organization's success at developing the CIO function. Grab a pencil and turn the page. BY THOMAS J. BUCKHOLTZ

Dear CIO:

This leadership test is designed to measure your performance and identify areas where you need improvement. As you go through the test's six sections, reflect on how well each one characterizes the job you do and the position you would like to create for yourself.

Then ask your staff, your boss and other key executives and colleagues to use the test to rate your performance. The feedback they provide and the discussion it creates will help you explore new opportunities and will help them understand the nature and complexity of your job.

***To the CIO's colleagues:** This test is designed for feedback so the CIO can enhance his or her contribution to the corporation. Your responses will give the CIO valuable information, and you will gain insight into the service a CIO can provide.*

Instructions

This leadership test includes six categories that describe key corporate roles of the CIO:

I. Technician
Focus: Information technology
Theme: Keep systems running

II. Clerk
Focus: Information systems
Theme: Process transactions and provide useful data

III. Librarian
Focus: Information resources
Theme: Provide expected and unexpected useful information

IV. Analyst
Focus: Insight
Theme: Make recommendations for the corporatioo

V. Coach
Focus: Corporate proficiency
Theme: Help people develop skills and accomplish the corporate mission

VI. Executive
Focus: Corporate goals and results
Theme: Take strategic action on behalf of the corporation

Within each of the six categories, this test presents four items, or "corporate needs," to which the CIO can contribute. For each corporate need, rate the CIO's leadership on a scale from 0 to 3 as follows:

0. Wallflower. The chief information officer and the information systems organization the CIO manages have no significant role.

1. Opportunist. The CIO and the IS organization make some contributions, but are not executing client-approved plans. (Clients typically are internal to the corporation but may include external organizations and individuals, such as customers, suppliers or business partners.)

2. Partner. Clients and the CIO have agreed on plans and are meeting objectives.

3. Laureate. Executives and other clients agree that the corporation is meeting its objectives, and that the CIO and IS organization are contributing significantly.

With four items scored from 0 to 3, the total score for each of the six categories will range from 0 to 12.

Illustrations by Lenore Lang

Technician

The CIO's Technician role includes leading the corporation's technology strategy and ensuring that clients are able to use technology advantageously.

For each of the following four corporate needs (A through D), provide a CIO leadership rating from 0 (Wallflower) to 3 (Laureate).

A. *Infrastructure.* Hardware, software tools and services perform well and fully support core corporare operations, such as product production, customer services, and accounting. Score (0-3): ___

B. *Integration.* The infrastructure technology and services foster widespread creativity and teamwork — through communication and data sharing among employees — and are integrated appropriately to support current and future corporate business success. Score: ___

C. *Optimization.* Infrastructure operations are being maximized in efficiency and minimized in cost (such as by consolidating network administration or acquiring corporatewide software licenses). Score: ___

D. *Modernization.* New technologies are deployed when appropriate (such as video conferencing, mobile data communications, or parallel-processing computers). Score: ___

Total Technician Score (0–12): ___

Clerk

In the Clerk role, the CIO ensures that the corporation effectively and efficiently processes business transaction data and other routine information.

A. *Databases.* Transaction databases and their applications fully support core corporate operations such as finance, customer service and procurement. Score: ___

B. *Data resource.* A data architecture encompasses the corporation's significant computerized data and applications; the data and applications fit the architecture; and the corporation thereby outmaneuvers less sophisticated competitors. Score: ___

C. *Efficiency.* The corporation continually improves and lowers the cost of data services (for example, by eliminating redundant systems or deploying an off-the-shelf manufacturing system). Score: ___

D. *Data sharing.* The corporation conducts electronic commerce with customers and suppliers (such as developing an electronically integrated "supply chain") or, if appropriate, shares other information with external clients and business partners. Score: ___

Total Clerk Score (0–12): ___

Librarian

As a Librarian, the CIO ensures that clients find, interpret and use information appropriate to their needs.

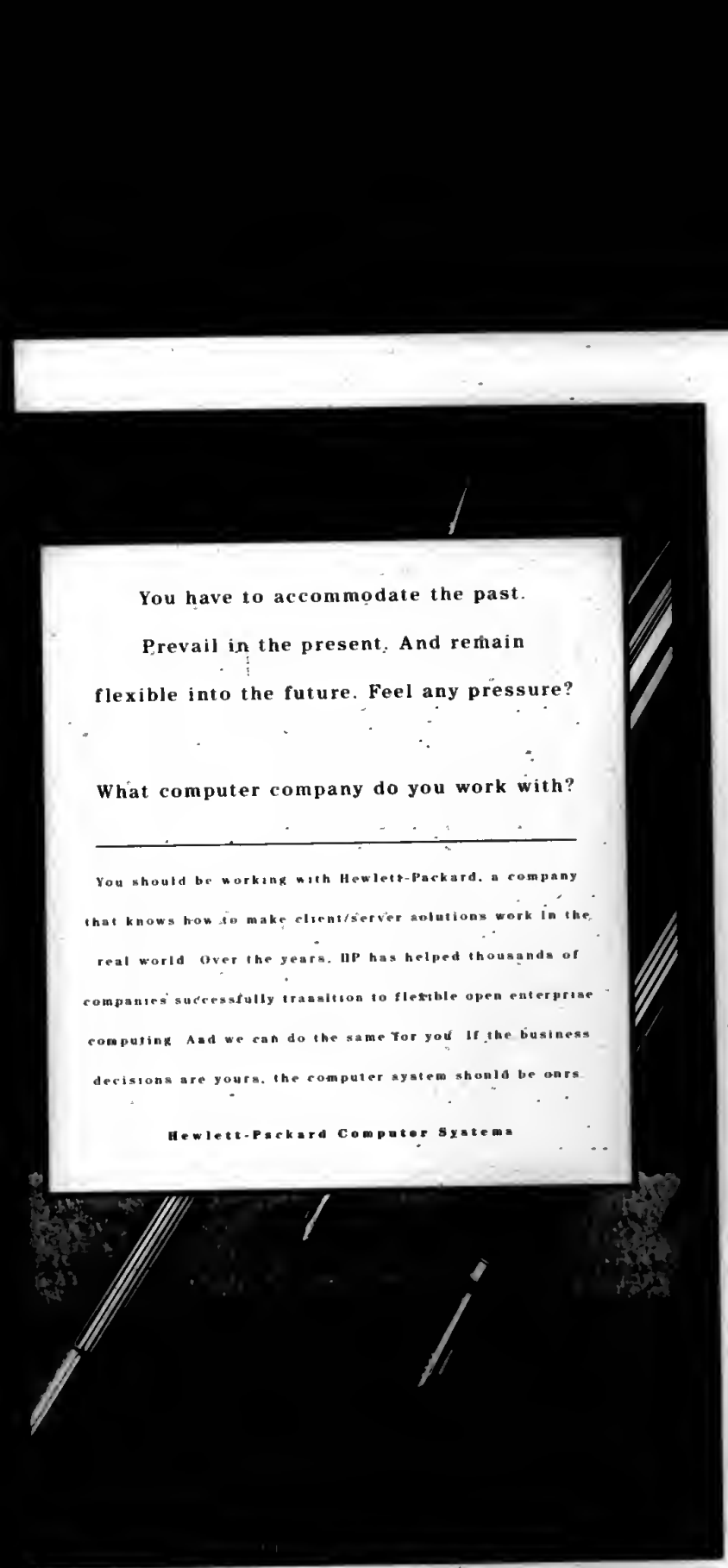
A. *Information resource.* The corporate information architecture includes all appropriate internal recorded knowledge, including information recorded on paper, and information from external sources such as business partners, information services, CD-ROM or the Internet. Score: ___

B. *Knowledge reuse.* The corporation is amassing and benefiting from an aggregation of data and procedures generated in the course of employees' and consultants' work (such as generating a library of client-developed software applications or capturing clients' knowledge via groupware). Score: ___

C. *Appropriate information.* Employees use the best information available (for example, they optimally formulate and satisfy their information needs, or they effectively use software tools for content- or context-based information searches). Score: ___

D. *Information use.* Employees interpret, use and share information appropriately and correctly (for example, they assess and take into account the trustworthiness of information). Score: ___

Total Librarian Score (0–12): ___



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Analyst

The CIO's Analyst responsibilities include suggesting and evaluating corporate opportunities, including opportunities to design or change products and processes outside the CIO's jurisdiction.

A. *Systems.* Processes are designed and information resources are implemented that support clients' improvement projects (for example, the IS organization specifies the requirements for a new manufacturing management system). Score: ___

B. *Risk evaluation.* When making major decisions, such as decisions about mergers or new products, the corporation considers the opportunities and risks associated with information resources and systems. Score: ___

C. *Information-based improvements.* The corporation identifies and evaluates opportunities, based on information resources and technology, to improve its products or work effectiveness (for example, the CIO suggests developing a product or service enhanced by an emerging technology). Score: ___

D. *Other opportunities.* The corporation taps the CIO's nontechnical insights when considering improvements to products, time-to-market or back-office procedures (e.g., it uses the "Why not do X?" insights the CIO has from working with clients, business partners and other corporations). Score: ___

Total Analyst Score (0–12): ___

Coach

As a Coach, the CIO enhances corporate and individual abilities and achievements. The Coach's contributions focus on the entire corporation.

A. *Mentoring.* The corporation benefits from client-led information resources or systems projects (e.g., the CIO and IS organization help clients become self-sufficient in acquiring special-purpose information systems). Score: ___

B. *Products.* Clients create profitable products or services based on technology or information resources (for example, the CIO and IS organization help clients create or market such products or services; this contribution transcends just proposing an idea). Score: ___

C. *Proficiency.* Clients improve their abilities to make and implement routine nonautomated decisions or nonroutine decisions (e.g., the CIO and IS organization lead an improvement program to help clients enhance their proficiency to make, communicate and implement decisions). Score: ___

D. *Catalysis.* The CIO and IS organization lead endeavors, outside the CIO's jurisdiction, to enhance corporate effectiveness (for instance, to improve customer services through process redesign). Score: ___

Total Coach Score (0–12): ___

Executive

The Executive CIO earns profits or at least serves as a fully contributing member of the senior management team.

A. *Management-team membership.* The corporate executive team benefits from the CIO's significant contributions both to decisions that feature information resources and systems and to decisions that do not. Score: ___

B. *Management-team proficiency.* The corporate management team enhances its processes, information and abilities to make and implement decisions (for example, the CIO conducts a process improvement program or serves as a facilitator). Score: ___

C. *Profit center.* The corporation earns profits by the IS organization's selling, to corporate-external customers, products or services currently being provided to internal clients (such as the consulting or software services being sold by some telecommunications and aerospace companies). Score: ___

D. *Business unit.* The corporation earns profits because the IS organization sells products or services not originally targeted for clients within the corporation (as do some energy utilities, which sell, or are evaluating selling, energy-usage-control or general-information services to utility customers). Score: ___

Total Executive Score (0–12): ___

Planning Your Future

To the CIO:
Use your self-evaluation and your colleagues' ratings and recommendations to develop your personal game plan.

Review the ratings for the 24 corporate needs. If you often score 1, Opportunist, consider building closer relations with your clients. Scores of 2, Partner, indicate that your successes could be better marketed for corporate and personal benefit. Scores of 3, Laureate, suggest springboards toward improvement elsewhere.

Next, target improvements in each of the six categories. Even if you score well as a Technician and Clerk, consider to what extent these activities comprise an essential but underappreciated function. Market the competitive advantage you generate — such as improving corporate capability and flexibility to meet today's and tomorrow's challenges. Market your role in enhancing people's abilities to share information and develop teamwork. Be sure to talk with peers and bosses using a non-technical vocabulary.

Librarian and Analyst roles provide you valuable opportunities to team up with your bosses and peers on their crucial projects.

Emerging technologies and services are providing you the wherewithal to be a comprehensive Librarian. Success depends on knowing your clientele and their information needs, as well as the information the world offers. You must reinterpret clients' requests to ensure finding those "unexpected" key pieces of information, and you must educate people about information resources and knowledge management.

Analyst is the first category for creating ideas beyond your nominal responsibilities. Use your personal perspective, your knowledge of the corporation and its markets, and the information you help the corporation acquire, maintain and use. It is a sign of your success when executives invite you to suggest improvements within their own jurisdictions.

The key to success as an Analyst, Coach or Executive is personal initiative. Seek, create, and capture opportunities to put good concepts to use throughout the corporation.

Strong Coach and Executive contributions are commendable. Clients and management look to you for leadership as well as service.

Next, assign priorities to each of the six categories and determine to what extent you will focus on each of the 24 corporate needs. Also, review your working environment for other ways you can provide value and foster positive images for you, your colleagues, your corporation and your profession.

Finally, consider the following career advice, based on your highest-numbered category (I. Technician to VI. Executive) of strength not jeopardized by weaknesses elsewhere:

Technician - If your circumstances demand that you remain a Technician, enhance your applications development skills, keep your resume up to date and do not ignore employment overtures from systems integrators.

Clerk - If you cannot become at least a Librarian, consider how long it will be before corporate needs exceed your capabilities. Keep your applications development skills current, as well as your resume.

Librarian - If you do not expect to broaden your scope of service, prepare for difficulties in joining or staying on the senior management team.

Analyst - Besides becoming a Coach, possible career paths include leading a different staff function, such as corporate planning.

Opportunities abound, throughout the Technician-to-Executive leadership spectrum, to provide Laureate service. The key is your personal initiative. Create and capture the best opportunities for the benefit of your corporation, colleagues and career.

Coach - If you cannot directly achieve Executive level service, your next step may be to lead a business unit or more staff functions.

Executive - You have potential to become chief operating officer, but you may need experience leading a different business unit. Take extra care to coach other people, if for no other reason than you may need to find your own replacement when you receive a promotion. ♦

About the Author

Thomas J. Buckholtz, Ph.D., is a management and marketplace consultant. Previously, as a commissioner in the U.S. General Services Administration, he served as the GSA's CIO, led a $1 billion business unit, and oversaw $20 billion per year in federal information resources and technology deployment. Buckholtz is the author of *Information Proficiency: Your Key to the Information Age* (Van Nostrand Reinhold, 1995). He can be reached in Portola Valley, Calif., by telephone at (415) 854-7111 or on the Internet at TomTJB@aol.com.

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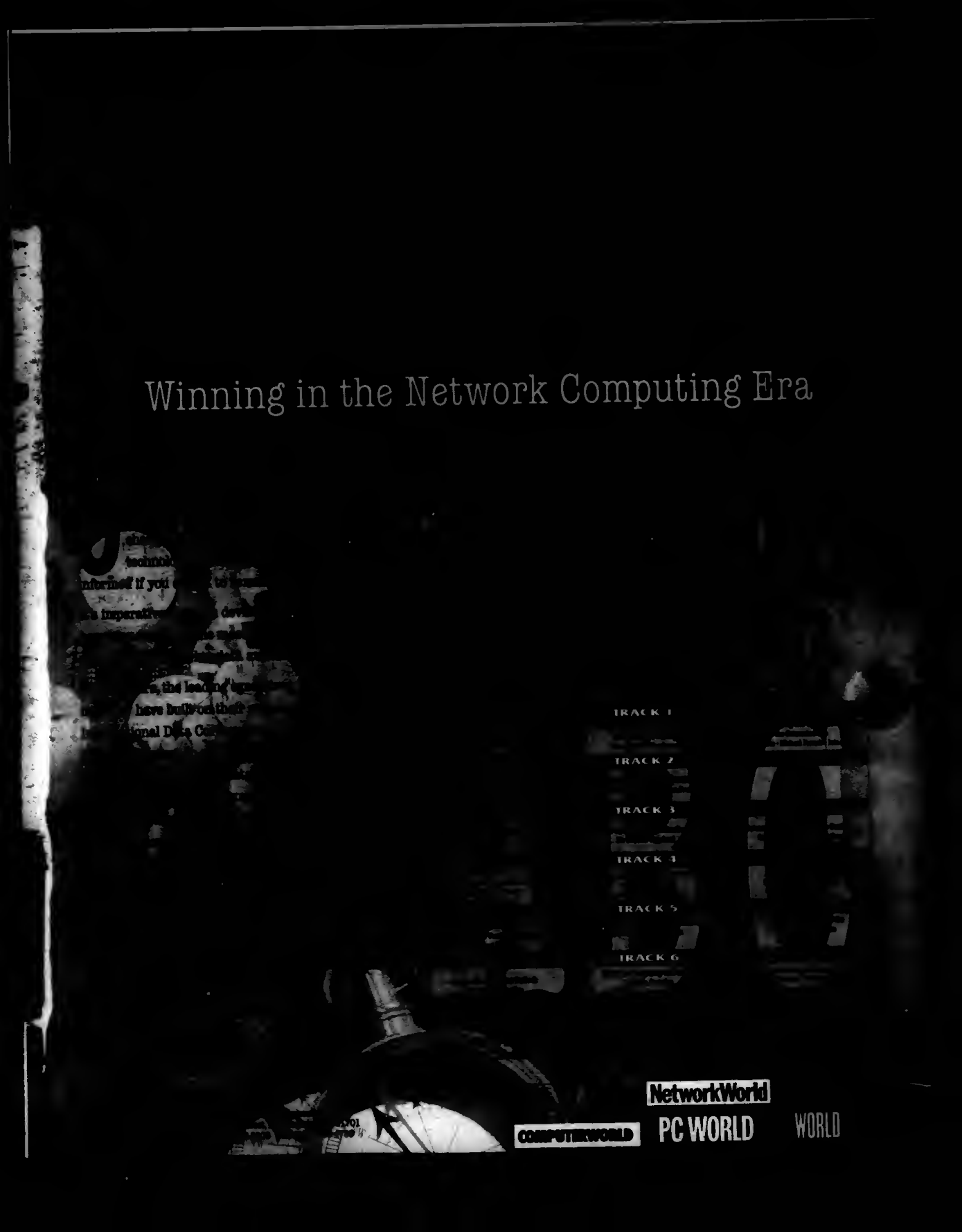

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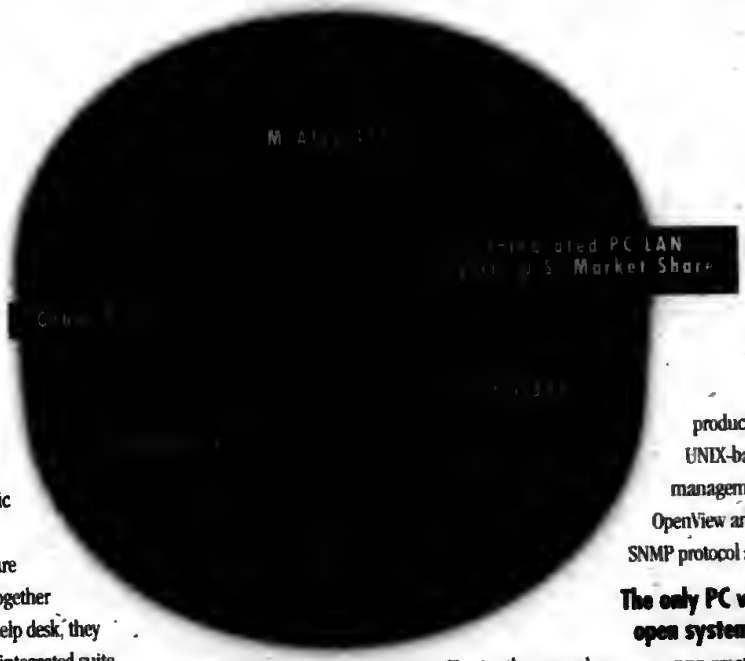

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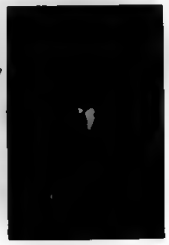
AOL's sellout

Add Steve Case to the list of so-called industry "visionaries" whose principles can take a backseat to profits.

You remember Case, don't you? The chairman of the wildly successful America Online took a highly visible stance against Microsoft's entry into the on-line market last summer. Case complained bitterly that Microsoft's bundling of The Microsoft Network (MSN) with Windows 95 was anticompetitive.

Well, enter whining, exit whistling. With a stroke of the press-release print key, Case and old foe Bill Gates kissed and made up last week. Microsoft will now offer AOL along with MSN on the Windows 95 desktop. And America Online, in a snub to new partner Netscape, will bundle Microsoft's browser with its access software.

America Online tried to "spin doctor" the deal as a victory for all on-line service providers because Microsoft was giving in on MSN's exclusivity in Win 95. Dream on. Microsoft made no definitive statement on that issue. Instead of holding out for a victory for the on-line industry, which a statement from Microsoft would have been, Case took his winnings and cashed out. In the process, he kicked Netscape, with which America Online had reached a bundling agreement just one day before, right in the stomach. Thanks, pal.



I wonder if Gates wakes up these days wondering if there are any challenges left out there anymore. Microsoft was losing the battle with America Online anyway, and giving away AOL software isn't going to materially affect the service's outlook. And in exchange for essentially providing AOL's ubiquitous free disks in the Windows 95 cereal box, Gates gets three big wins. Microsoft gains a huge new distribution channel for a browser it was giving away for free anyway. Its most dangerous competitor — Netscape — is publicly humiliated. And to complete the three-point play, Gates turns vocal critic Case into a Microsoft booster. The effective net cost to Microsoft is just about zero.

What's disappointing about the announcement is watching Case backtrack on the principles he so vociferously promoted last year for the sake of an opportunistic deal. Case deserved credit for taking a public stand against Microsoft when other industry executives were hiding behind anonymity. Had he pushed just a little harder, he could have justifiably positioned this deal as a victory for the little guys. Instead, he let Bill Gates buy him out. For a song.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*
http://www.ultranet.com/~pgillin

OH, YOU SHOULD SEE HOW THEY TREAT THE EMPLOYEES THEY DON'T TRUST.
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Courts must go by the letter of the law

I am an intellectual property attorney with a pretty broad background in computing. You express confidence that judges would not take the wording of the Communications Decency Act (CDA) literally ["Defending limits," CW, Feb. 26]. Unfortunately, the standard that any court must use is the "plain meaning" of the language of the statute. Law must be executed without regard for the inherent contradictions. The very idea that a judge should second-guess the legislative branch is anathema to the majority of judges.

There are no standards for the definition of obscenity in the law. The prevailing community standard is different in New York City from the standards in Kansas City and Stockholm.

The courts really have no concept of the issues and complexity of the on-line community. I am pursuing a suit in which two teen-age hackers broke in to one of my accounts, placed beneath my electronic-mail directory a rabbit's warren of pornographic images and cracking software and sent messages from my account to other parties without my knowledge. I am in the process of explaining to computer-illiterate defense counsel and parents what all the fuss is about. It is not a trivial task. It will not be trivial to explain these issues to the judge or the jury.

The CDA prohibits transfer or access to information regarding human sexual or excretory functions. The courts are going to interpret that statute — if it isn't struck down — as broadly as it has been written. Laws and programs are roughly equivalent. You would not stand for sloppy code in a mission-critical application, and we cannot stand sloppy drafting of laws that directly affect our lives.

Finally, I must say that I again disagree with you regarding your inability to regulate your children's on-line activities. I certainly regulate my 14-year-old's access, and I have made it quite clear to him what is and is not acceptable. That is my job as a parent, not the government's.

George R. O'Connor
Matalone & O'Connor
Independence, Mo.
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Cable isn't ready for telecommunications

Regarding the notion of cable TV companies offering telecommunications services ["Telco managers dial for reform dollars," CW, Feb. 5], I have the following two questions for your readers:

1) How many times in the past year has your cable TV service been interrupted, even if only for a minute?

2) How many times in the past year has your telephone service been interrupted?

Based on my experience, I would guess that the answer to Question 1 far exceeds the answer to Question 2. I can count my telephone outages in the past year on zero hands; I've already lost track of the number of cable outages in the past month.

How can any reasonable information systems professional trust a cable provider's cable TV lines to deliver critical telecommunications services when those lines go down every times it rains hard? The "ready-made infrastructure" you refer to is far too unreliable for me to even consider using my cable provider as my telecommunications provider.

Keith Stillinger
Implementation consultant
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Atlanta
bear@rochade.com

Don't blame the tool

Bruce Tong's letter complaining about his Week-At-A-Glance planner not being organized is a case of blaming the tool ["It's all in the timing," CW, March 4]. Failure to maintain your resource file is a personal problem, not a tool problem. Because most address directory sections are separate from the weekly planner, they don't need to be replaced yearly. Moreover, I can keep myself supplied with annual weekly planners for the remainder of my working life for far less than the cost of a personal digital assistant toy.

I'm certainly no Luddite, yet I will stay with my "paper dinosaur" planner, thank you.

Steve Martin
Denver
smartin@millibro.sctc.mmrc.unisys.com

● Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Paul Gillin, Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Chris Miksanek

See the $500 PC. It uploads! It downloads!

Folks, I'm here to introduce the PC Appliance, a revolutionary device designed to perform basic computing tasks without the cost or features of larger, more advanced machines.

Now how much would you expect to pay for the PC Appliance?

Don't answer yet because we're gonna throw in a keyboard, a mouse and some no-frills software. Separately, these items might fetch as much as $3,000, if they were as robust and sophisticated as their fully functioning counterparts. But you can have this limited-function PC Appliance not for $3,000, not for $2,000 and not even for $1,000. Everything you see here is only $500. You heard me right, $500.

Order now, and we'll throw in the dot matrix printer and the Chia Pet.

What's that you say, friend? You just bought a comparably crippled machine at a garage sale for $75, and it was called an IBM XT?

Step aside son, you're bothering me.

And, if you're one of the first 2.5 million to order, we're gonna throw in this "at one time top-of-the-line" printer worth $100. Yes, that's right. Why pay $800 for laser quality or even $300 for near-laser quality, when you can have dot matrix quality? And we're gonna throw in not one, not two, but three reinked ribbons.

What's that, my industry-savvy friend? You saw an old Epson nine-pin at a swap meet for $15? You must be mistaken. This one includes the manual.

So here's the deal: You get the PC, the printer, all the manuals and — if you commit to the $500 PC right now — we're gonna throw in the incredible $35 modem. That's right, call Bellevue, we've lost our minds. We're going to give away a perfectly operational 300 bit/sec. modem with every order.

Convinced? Pal, I'm going to ask you nicely to stop using profanity. I don't understand what you mean by, "One man's trash is another man's marketing coup."

Don't think that because this is a modestly priced PC, you won't be able to play some of the most popular games of all times. Act now, and we'll throw in an Entertainment Package worth $25 that includes the classic Zork. Remember those great days of text-based adventure games when you needed to use your imagination? Well, that imagination will come in real handy as you think about the usability of the $500 PC.

What's that, my vociferous friend? Why would anybody buy a $500 PC today when that same PC will be marked down to $299 in a few months — but no one will want it then either because the new $500 PC will be so much better?

Well, why didn't you say you were a corporate buyer? Allow me the opportunity to discuss, over a complimentary trip to Barbados, how the $500 PC isn't just a *solution*. It's a *paradigm* that can save your firm *big bucks*. Ever heard of client/server, TCP/IP and network management? So have we, and in 10 years, the $500 PC will support them, too.

Hmmm. Still not convinced? What if we threw in a Chia Pet, a smokeless ashtray and a Veg-A-Matic? Now would you be willing to pay $500? At least tell me we're closing in on the sale.

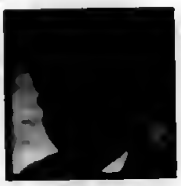
Miksanek finds it suspicious that the $500 PC concept was introduced about the same time a cache of Commodore 64s was recovered off the coast of San Jose, Calif.

Michael F. Cavanagh

E-mail privacy: A glass almost half-full

A half-dozen years ago, the relatively young E-mail industry faced a serious threat from lawsuits and headlines that suggested that managers were spying on employees by reading their E-mail.

It seemed as though the entire weight of the privacy lobby was pressing on E-mail administrators and vendors. Ill-conceived legislative proposals also arrived on Capitol Hill.



Good news: 40% have an E-mail privacy policy. Bad news: 60% still don't.

Sticky questions were being raised. Could E-mail be opened by supervisors? Should that be restricted? What type of disclosure to employees is appropriate? Don't superiors and colleagues open desk drawers and file cabinets and locked offices to retrieve information in business emergencies?

The best practice is to have a privacy policy and tell employees what it is.

So the Electronic Mail Association (now the Electronic Messaging Association) in 1991 commissioned privacy attorneys David Johnson and John Podesta to write a booklet on the complexities of E-mail privacy and corporate options.

In the strongest possible terms, the association's No. 1 recommendation was that every employer should have a privacy policy — covering E-mail and other aspects of work life — and tell employees precisely what that policy is.

Why? To prevent misunderstandings, which can lead to strained relations and lawsuits. Some employees get the notion that because they work at a "personal" computer, the messages traveling to and fro on the corporate network can be seen only by the intended recipient.

A good privacy policy will tell employees under what circumstances — such as business necessity, safety investigations and subpoenas — their E-mail may be seen by others. One caution: Trying to be too specific might work to the detriment of all involved when an emergency occurs.

So what has happened since the publication of the 1991 booklet? Survey results just released by the Society for Human Resource Management (SHRM) in Alexandria, Va., provide some clues. The survey drew from a random sampling of 3,000 SHRM members, with more than 500 responding.

The SHRM survey found that just under 40% of the organizations that use E-mail have implemented written E-mail privacy policies. While this isn't as high as we'd like to see, it's a remarkable figure in light of the relatively short time that E-mail has actually been deployed in the workplace.

The figure is even more striking when contrasted with the sorry state of privacy policies for more traditional elements of business life. Less than one-third of all SHRM respondents reported having any privacy policies about access to desk drawers, file cabinets and lockers, for example.

Why are there more policies governing E-mail than ones governing a worker's desk? "Privacy policies are equally important for paper-based information as they are for digital information, but it appears that E-mail provides the impetus for many organizations to get a grip on privacy issues," observed SHRM President and CEO Michael R. Losey.

The survey identified three other issues that need to be addressed:

- More than 50% of the respondents didn't provide confidentiality training for IS staffers who might have access to E-mail.
- Only about 30% of the surveyed organizations inform their employees that E-mail messages, just like paper documents, can be demanded as part of discovery in court actions.
- Only about 20% of respondents indicated that their organizations have adopted a formal records-retention policy for E-mail.

Of course, simply having an E-mail policy isn't a panacea. Policies must be updated, communicated and enforced. And some would argue that having a policy isn't the final step in the evolution of workplace privacy.

Still, this may be a time when we can briefly pause and say that quite a bit has been accomplished. Then, it's time we get back to work and make workplace privacy policies the overwhelming rule, rather than the exception, in corporate America.

Cavanagh is president of Cavanagh Associates, Inc., an Arlington, Va.-based consulting firm. From 1983 to 1993, he was the founding executive director of the Electronic Mail Association. His Internet address is 5846337@mcimail.com.

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Sales of multiprocessor superservers are surging, 41

Scaling to new heights

By Michael Goldberg

Users staring at the scalability limits of symmetrical multiprocessing servers, take note. New processing capabilities are due later this year, when two vendors unveil technology that gives a shared-memory feel to parallel systems.

Sequent Computer Systems, Inc. and Data General Corp. plan to introduce servers based on Non-Uniform Memory Access (NUMA) technology, which uses four-processor Pentium Pro-based boards from Intel Corp. (CW, Oct. 16).

Observers said NUMA servers scale to heights now reached only by massively parallel systems. They are also as easy to use as symmetrical multiprocessing servers because NUMA doesn't require users to rewrite software.

Sequent officials said they expect their NUMA-based servers to reach 252 processors. Data General executives in Westboro, Mass., said the scalability of their servers will depend on market demand. Both vendors offer Unix-based systems that scale to about 30 processors.

Users who work in environments where data processing demands grow annually said they looked at Sequent's technology road map — and the future scalability offered by the NUMA architecture — when they picked their hardware platform.

Future scalability "was one of the things ... we were looking for," said John Hickey, senior vice president of production services at the Nasdaq Stock Exchange in Trumbull, Conn.

Need for speed

The National Association of Securities Dealers runs Nasdaq and last year used Sequent's Symmetry servers to set up a gatekeeper system for traders who use such servers.

NUMA provides high-speed interconnections among processing nodes or four-processor boards. Each node has four processors that share memory and I/O resources. The interconnections let processors in one node check the memory in another node.

In Sequent's NUMA implementation, a gallium arsenide chip pumps information about memory locations among the different nodes at a rate of 1G byte/sec. At this speed, the processor boards appear as a single board to operating systems and software applications, according to Sequent officials.

Data General has a similar strategy for its NUMA implementation, which emphasizes technology by Dolphin Interconnect Solutions, Inc. in Westlake Village, Calif.

These interconnections among processing nodes also promise a 1G byte/sec. access rate.

Analysts said NUMA-based servers, if introduced without major glitches, would become an important option for large systems users.

"The thing about NUMA which is most compelling from an end-user point of view is that there's no rewrite [of applications]," said Jonathan Eunice, president of Illuminata, Inc., a research firm in Nashua, N.H.

"This is a very important thing when you're choosing a technology" for an application such as a data warehouse or decision support system, he said.

Eunice said he was skeptical of Sequent's claims that even the largest NUMA systems wouldn't require modifications.

Eunice said vendors or users might have to tweak such applications as database management systems, if only to optimize their performance for large numbers of processors.

NUMA is critical to vendors such as Sequent and Data General that seek to differentiate themselves even as other systems makers look at similar approaches, said Wayne Kernochan, an analyst at Aberdeen Group, Inc. in Boston.

He said Hewlett-Packard Co., for example, is considering using quad-processor boards in its HP 9000 line.

Simplify, simplify

Sequent's design, NUMA-Q, which stands for Non-Uniform Memory Access for quads, gives a single system image to a parallel-processing computer design.

NUMA uses four-processor ("quad") Pentium Pro boards as the building blocks and a high-speed interconnection to access memory distributed across up to 63 quads.

The speed of the memory access across these quads — 2 to 3 microseconds to check memory in 63 quads — minimizes potential data bottlenecks and makes it possible to run applications as if they had one set of instructions.

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You need remote access that won't
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CISCO SYSTEMS

You need dial-up solutions that deliver the full power of the enterprise.

Today's business pressures are different than those of just a few years ago. The demands of providing your employees global network access, increased customer support services, and timely, dependable information anytime, anywhere, are driving enterprise resources out to remote locations. But it can't happen without the right remote access infrastructure, both at the enterprise and at remote locations.

Successful remote access means being able to connect more and more telecommuters and mobile workers to the Internet and enterprise networks from practically any location, almost transparently, as if they were in offices at headquarters. These telecommuters and mobile users need remote e-mail, fax, terminal emulation, groupware, World Wide Web services, and soon, videoconferencing capabilities.

All of this requires equipment, network management security, software, and training. And the first question is how to protect your already-substantial technology investment. Clearly, new incompatible products from a myriad of vendors is not the answer. You want remote access solutions that work right from the beginning. You want them to work with the equipment you already have. And you want them to be scalable for the future.

There is s way, right now. And the results are worth it. Research shows that remote access to enterprise data directly contributes to revenues, customer satisfaction, company productivity, and individual effectiveness, satisfying many of the competitive pressures of today's business environment. That's why commitment to remote access is predicted to grow six-fold from $720 million in 1994 to $4.4 billion in 1998. And there's s reason why Cisco Systems currently owns 51 percent of the remote LAN access market.*

Cisco has the solution.

Now, the hardware, network management, software, and training you need can be built compatibly around your existing network, strengthening it, not sacrificing it. With Cisco's end-to-end remote access solutions, you can protect your investments in routing, switching, modem technology, and people. Cisco has the complete solution from beginning to end, from the latest mobile user and telecommuter software and personal routers to enterprise LAN/WAN equipment, and from the powerful Cisco Internetwork Operating System (Cisco IOS™) software to central-site management software. We can deliver compatible, scalable products with a future that compliment your existing investment and satisfy your remote access needs at each stage of growth. Now, you have a wide range of interoperable hardware and software options to build a complete solution.

One supplier, one network.

You already know us as the ten-year leader in router and internetworking environments, traditionally specializing in large, multi-protocol networks.

We pioneered the first wave of internetworking by introducing multi-protocol router technologies that provide network communications throughout buildings and campuses as well as across large WANs. Then we introduced the second wave of internetworking through the introduction of small leased-line routers that extend the enterprise to smaller individual LANs in branch offices. Cisco offers more products supporting the first two waves of internetworking than any other vendor. In fact, over 80 percent of the entire Internet worldwide is based on Cisco routers.

Now we're building the third wave of internetworking, extending the enterprise out to dial-up users for anytime/anywhere access. It started with our first single-user access servers, the Cisco 2509-12, and remote branch dial up routers like the Cisco 2503 and 2504. Then we introduced products like CiscoRemote, the complete software solution for telecommuters and mobile users; the Cisco 200 Personal Office for ISDN; the Cisco 750 and Cisco 1000 low-cost, high-speed ISDN routers. Our Universal Access Server, the Cisco AS5200 and the integrated AS5100, and Cisco 4000 and Cisco 7000 Series for ISDN concentration, and many new products, make this offering the most complete solution for remote access, turning the third wave into a practical reality.

* Market share data supplied by the Aberdeen Group and Infonetics Research, Inc

Cisco Dial-Up Access: The Natural Anytime/Anywhere Extension of Your Enterprise Resources.

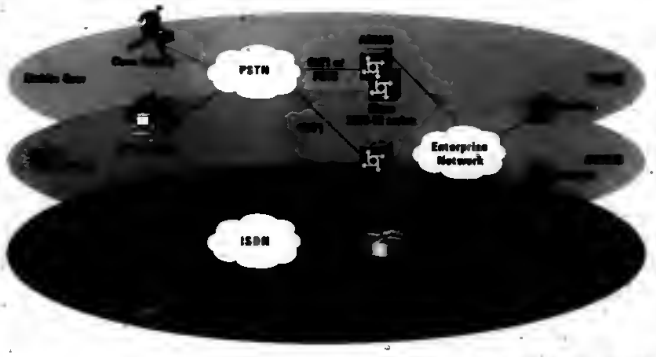
Dial-up is a specific activity of remote access that connects home-based or small remote office telecommuters and mobile users in the field to enterprise networks. Their numbers are growing quickly, and their requirements call for both asynchronous and ISDN connections to your enterprise resources. But that's all right—Cisco has every combination of options you need.

For example, first let's look at mobile users. They're constantly on the go from airport to hotel to customer location and back home for a day, and they rely on convenient POTS (plain old telephone service) connection capabilities—the only connection service available virtually everywhere. They access the Internet and enterprise resources primarily for mainframe database information, customer order tracking and pricing, scheduling, e-mail, file transfer, and occasional software downloads. You can give them the dial-up connectivity they need with Cisco's integrated, easy-to-use remote access software, tamper-proof security, and reliable, high-performance access servers at the enterprise end.

Second are casual telecommuters. They are the office-based users who take work home to finish at their leisure, or who must work online while on the road. These users need dial-up access for all of their regular office computing tasks without investing a lot of time solving connectivity obstacles. For many casual telecommuters, the universally available, simple connections of modem-based asynchronous dial-up is preferred. Power users with multi-media desktop computers have higher bandwidth and quicker connect time needs, provided by ISDN.

Third, let's look at home-based, dedicated telecommuters. These users are increasingly dependent on the communications link to the enterprise. And that means they want the advantages of the new digital services afforded by ISDN. This transmission medium provides stable, quick-dial, high-bandwidth transmission for voice, data, and

	Situation	Need	Advantage
Mobile Users	Constantly changing work environment		Complete mobility Customer contact
Casual Telecommuters	Temporary home connection		Compatibility Work-at-home convenience
Dedicated Telecommuters	Semi permanent home connection		Higher productivity Reduced overhead



video. It delivers high-speed Internet connectivity to business applications. ISDN can turn a home computer into a productive, highly capable computing center, and it is one of the primary enabling technologies of telecommuting. In addition, users from all three categories will want Internet connectivity for communications, digital commerce, and information-gathering.

Asynchronous and ISDN, however, are environments that require somewhat different equipment configurations, both at user locations and at the enterprise. And that has traditionally made them separate management, maintenance, and investment propositions, usually at the expense of depriving telecommuters of ISDN.

A hybrid mix of both asynchronous and ISDN access to the enterprise is the current reality faced by every major corporation worldwide. Hybrid enterprise access is the best way to accommodate the needs of all telecommuters and mobile users. And until now, the question has been how to install and support both, extending the multi-protocol enterprise out to dial-up users for anytime /anywhere access, and do it cost-effectively. With Cisco, the question is answered.

The products described here are a complete end-to-end solution for any mix of hybrid or separate dial-up connections for your users. Many of them are unique in their capabilities, and several have won some of the industry's most prestigious awards, including Data Communication's Product of the Year for the Cisco 750 Series and PC Magazine's Editors' Choice for the Cisco 752. Further, they're based on the Cisco IOS software, the de facto standard in internetworking. Cisco IOS software is the unifying thread of otherwise disparate networks. It brings the value-added benefits of proven, reliable adaptive routing, WAN optimization, scalability, and management to enterprise networks. It also solves today's number one issue of network managers, be they large or small: security. Cisco IOS software, CiscoSecure, and all of the rest of these solution choices can help you build your remote access network as a hybrid system from scratch. Or you can compatibly add ISDN capabilities by *building on* your existing network. Now, the choice is yours.

Cisco's new generation of remote access solutions for both asynchronous and ISDN offer end-to-end product compatibility and interoperability with your existing Cisco network infrastructure. With one supplier providing the internetworking operating system, application and multi-protocol software, hardware, and services for one enterprise network, you gain a big advantage: end-to-end, seamless networking technology, from the enterprise backbone through remote site leased-line routers and out to individual mobile users and telecommuters.

"At EDS we see a clear need for the kind of dial-up solution that Cisco's Universal Access Servers will provide. These and other similar servers will help us meet our increasing need for multiple types of remote access for our customers and remote workers."

-Mike Dews
Senior Software
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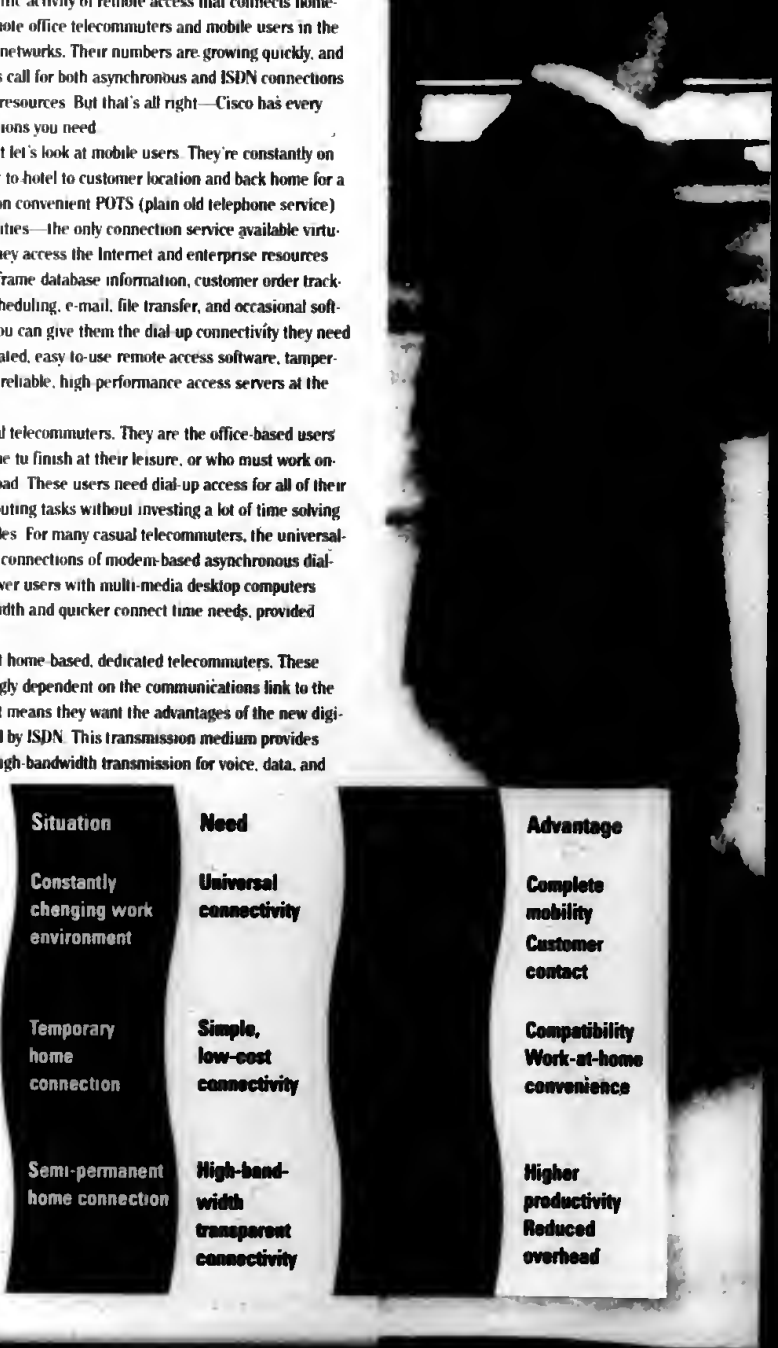

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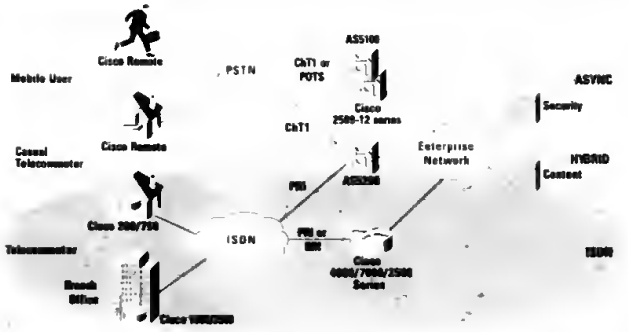

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It's a solution that is guaranteed to excite the third wave of interoperability, remote freedom and productivity, and global competitive activity.

Introducing the Products that Deliver the Millennium Ahead of Schedule.

Cisco Universal Access Server 5200

Accommodate Asynchronous and ISDN Lines with One Standalone Central Site Server.

The AS5200 delivers both asynchronous and ISDN service for IP, IPX, and ARA protocols and is specifically designed to handle both mobile users and telecommuters. These highly scalable universal access servers run Cisco IOS software and function as channel service units/data service units (CSU/DSU), channel banks, communication servers, routers, and modems tightly integrated into one standalone chassis. The AS5200's modular architecture allows you to build your dial-up infrastructure with a choice of modems from several functional options and vendors, including fully managed modems from Microcom and U.S. Robotics.

The AS5200's high degree of component integration in one chassis also eliminates the incompatibility problems that are common with multi-box, multi-vendor installations and increases the overall system reliability. All of its multiple components — CSU/DSU, router, access server, and modems—are supported by Cisco's world-class 7x24 global support team.

The AS5200's mixed-media flexibility lets you simplify the transition to ISDN service, consolidate management and maintenance, and optimize support for all of your dial-up users.

Benefits

- Offers users an extremely scalable solution appropriate even for smaller organizations
- Provides a simple, cost-efficient migration path from today's predominantly analog dial-up environment to the fast-growing ISDN digital services that telecommuters prefer
- Provides a single-unit money and space savings, increased reliability, and simplified management through integrated dial-up and routing functionality
- Extends the Cisco IOS software software security architecture to the dial-in point of contact
- Offers unprecedented scalability through multi-chassis, multilink PPP
- Ensures sophisticated, integrated management that allows data gathering, analysis, and configuration

Features

- Services and terminates asynchronous (POTS) and digital (ISDN) calls with one platform and phone number
- Accommodates two PRI/T1 or PRI/E1 lines using its integrated CSUs

"A good package is one that you install, make a connection, and log into the Internet first time.

That's what happened with CiscoRemote this morning."

-Nathan Sowatskey
Project Manager Software Systems SAIX
(South African Internet Exchange)

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Fax_____ E-mail_____

Address_____

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City_____ State/Province_____

Zip/Postal Code_____ Country_____

Priority Code: D-443

Please provide us with the information below:

I am a: Government Reseller [ ] Consultant/Contractor [ ] End User [ ] Integrator [ ]
Partner or OEM [ ] Other_____

If end user, I am a: Mobile User [ ] Telecommuter]] Home Office/Small Office]]
Branch Office [ ] Other _____

What is your job function: President/Owner/Vice President [ ] CIO [.]
Network/MIS Director/Manager]]
Systems Analyst/Network Engineer/Network Analyst [ ] Marketing/Sales [ ]
Other Administration (Buyer/Purchasing Agent)]]

Do you have a networking project planned (i.e. time frame to purchase)?
0 - 3 months [ ] 4 - 6 months]] 7 - 12 months [ ] 12 + months [ ] Nothing Planned [ ]

I am interested in a Dial-Up Seminar: Yes]] No]]

Would you like a Cisco representative to call you? Yes]]

- One Ethernet port routes data locally
- Two synchronous serial ports to back-haul data to other sites
- Contains up to 48/60 modems provided by a selection of leading vendors with a choice of feature options
- Full Cisco IOS software software support, including router functionality

Applications

Mixed-media analog and digital enterprise connectivity for mobile and home-based users.

Cisco Universal Access Server 5100

High-Performance, High-Reliability Enterprise Access.

The popular AS5100 access server is a versatile, tightly integrated device that provides asynchronous dial-up access to enterprise networks for remote individual users or remote LANs. Similar to the AS5200, the AS5100 is an integrated modem access server. However, the AS5100 is optimized for asynchronous access (IP, IPX, ARA), while the AS5200 provides mixed asynchronous and ISDN dial-up.

Benefit

- Uses U.S. Robotics core competency in modem technology in conjunction with proven Cisco Access Server functionality

Features

- Hot-swappable modem cards that maximize uptime
- Cisco IOS software software support and sophisticated modem management

Cisco Access Sever 2500 Series

Complete Connectivity Solutions for Remote Offices.

Cisco 2509, 2510, 2511, and 2512 series of access servers are midrange platforms that provide one Ethernet or Token Ring interface with two serial and 8 or 16 asynchronous interfaces. Their interface flexibility and port density offer a cost-effective way to connect to enterprise resources with external modems.

Benefits

- Cost-efficient enterprise network access for remote users
- Flexible interface options
- RS-232 ports for connection to existing modem pools

Features

- Routing and remote node support for IP, IPX, AT and more
- Support for all popular WAN services such as leased lines, frame relay, ISDN, X.25, and SMDS at 115Kbps per port

CiscoSecure Server

Centralized Dial-up Network Security.

CiscoSecure is our security server software application. It lets a network administrator centrally control access to a private network and its routers to secure an enterprise network for dial-up access as well as router management. Centralized control simplifies management and helps ensure simple, safe, and consistent administration of remote access policies. CiscoSecure can also give Internet service providers billing, authentication, and access author·ization for geographically distributed subscribers.

CiscoSecure is the server portion of a distributed client/server security solution for use on a Unix workstation. It utilizes the advanced TACACS+ client/server security protocol while Cisco IOS software software gives you added support for the RADIUS security protocol, giving users both in one integrated system.

TACACS+ uses Transmission Control Protocol (TCP) transport for reliable packet delivery and offers fully secure packets for communications between dial-up access servers and CiscoSecure. Not only are passwords secured, but all transactions, including user name, authorization level, and usage are encrypted.

With CiscoSecure, a network administrator can centrally control access to a private network and its routers through its GUI interface by creating a database that defines specific user privileges. Network access security provides control over three sets of parameters: authentication, authorization, and accounting, referred to as AAA. CiscoSecure's flexible and scalable central database manages user and group authentication and authorization profiles (TACACS+).

Benefits

- Simplifies and centralizes security for large dial-up access pools
- Delivers advanced TACACS+ security protection
- Provides authentication, authorization, and accounting
- Provides a central point for management of and allocation from IP address pool

Features

- Provides TACACS+ client/server security protocol with TCP transport for reliable delivery of MD5 encrypted packets
- Encrypts all transactions, including username, password, authorization level, and activity
- Complete AAA functionality: authentication, authorization, and accounting
- GUI interface simplifies and speeds user and group profile set-up
- Full packet encryption for all traffic between the access server and CiscoSecure
- Password support that offers: Cleartext, DES, S/Key, /etc/passwd file, CHAP, PAP, and ARAP
- Multiple challenge responses

"It's clear that Cisco's technology roadmap is embracing the wave of the future with the introduction of the AS5200 as its first release in a new line of Universal Access Servers. This is just the kind of technology we need to serve our customers' rapidly diversifying needs for remote access."

-Mike Duckett
Manager of Network Engineering
BellSouth Applied Technologies

- Password changes by either the user or security manager
- Automatic refusal of easily guessed passwords
- Logged violations of multiple user/password occurrences
- Programmable password aging with early warning messaging
- Time-of-day and day-of-week access permission for block-out periods
- Explicit start and end account dates
- Authorization services through EXEC, PPP (IP, IPX), SLIP, and ARAP

Applications

CiscoSecure gives network managers the features required to secure and manage remote access of enterprise systems by dial-up users.

CiscoRemote Plus and Lite

The Only All-in-One Remote Access Software Solution.

CiscoRemote is a series of two remote access software offerings. The first, CiscoRemote Plus, integrates all of the "best-in-class" access utilities that users need for remote computing on one CD-ROM under a single Cisco support plan. This complete software solution gives users applications and utilities that are optimized and guaranteed for Cisco remote access hardware. Purchased separately, these applications would cost over eight times more, with no assurance of interoperability.

The second, CiscoRemote Lite, provides basic remote-node connectivity "out of the box" and is available at no charge with the purchase of a Cisco access server.

Features

CiscoRemote	Lite	Plus
Windows 3.1, Windows for Workgroups, Windows 95	•	•
Windows Installer, Dialer, Modem Discovery Program	•	•
TCP/IP VxD Stack Optimized Connectivity	•	•
PPP and SLIP	•	•
ISDN support with autoswitcher	•	•
Asynchronous analog modem support	•	•
Telnet, FTP, TFTP, Ping	•	•
IP/IPX		•
Powerburst Remote Node Accelerator		•
Netscape Navigator 2.0 Web browser		•
Collaborative Computing Document Conferencing by DataBeam		•
Eudora E-mail		•
Timbuktu Pro Remote Control		•

Benefits:

- Saves time and money as a complete bundled and tested remote computing solution
- Simplifies installation and integration of multiple remote access applications
- Speeds information retrieval and reduces connection time

- Eliminates multiple service organizations through one support call
- Optimizes connections with Cisco access servers for best performance

Applications

CiscoRemote is designed for users who need high-performance access applications for telecommuting or mobile computing over dial-up phone lines via either asynchronous analog modems or ISDN.

Cisco 200 Family

The All Inclusive Single-User ISDN Adapter.

The Cisco 200 products give users economical remote access to enterprise networks and the Internet over ISDN lines. All product models combine an Open Data-Link Interface (ODI) workstation driver (supporting IPX and TCP/IP protocols) with an ISDN adapter in a complete, economical package. The Cisco 201 is designed for users outside North America, and the Cisco 202, with an integrated NT1, is for North American users. The Cisco 203 and 204 versions include a copy of CiscoRemote Lite softwa for a single unit, all-inclusive remote user package. The Cisco 200 series is ideal for telecommuters working from home or remote offices. It provides transparent access to enterprise resources, such as host computers, printers, e-mail, databases, and technical support. It is also a perfect solution for remote or headquarters-based users connecting a single desktop PC to the Internet using a high-speed ISDN connection.

Benefits

- Provides 56 kbps and 64 kbps transmission rates for cost and time savings
- Delivers up to 128 kbps of throughput via multilink Point-to-Point (PPP) protocol
- Provides access to the widest range of Internet vendors and services
- Full-strength ISDN at home significantly reduces connection time compared to analog phone lines
- Presents a complete solution in one easy-to-install product
- Offers lowest-cost entry point into the Cisco Access product family

Features

- Easily installed by non-technical users
- Transparent Dial-on-Demand when connected to a Cisco router—users pay for the ISDN connection only when data is being transmitted
- Dynamic bandwidth-on-demand optimization—multilink PPP ensures efficient use of WAN bandwidth, expanding from one to two B channels transparently as specified by the user
- CiscoRemote software support provides all the protocol software necessary for dial-up and ISDN access to corporate networks and Internet services from a Windows PC, including TCP/IP, Netscape Navigator, Remote Node Accelerator, and IP applications integrated and optimized on one CD-ROM

Applications

Cisco 200 ISDN adapters are designed for telecommuters or individuals in remote offices who need access to the Internet and enterprise network resources via a Windows PC.

Cisco 750 Series ISDN Routers

Designed for Dedicated Telecommuters.

While the complementary Cisco 1000 series is designed for small branch office connectivity, the Cisco 750 series is tailored specifically for telecommuters that need IP and IPX routing over ISDN.

Benefits

- Cisco-designed for ease of operation—Personal Network Profiles makes connecting and disconnecting multiple sites easy
- With IP and IPX routing, the Cisco 750 series supports most popular enterprise LAN protocols
- Support for major connection types means easy integration into your networking environments
- Dial-on-Demand routing and 4:1 data compression provide efficient use of WAN connections and lower connection costs
- Included Cisco ConnectPro software for Windows is an intuitive tool for installing, configuring, and monitoring your router
- Lowest-cost, standalone router offered by Cisco

Features

- Dial-on-Demand Routing for IP and IPX protocols
- Multilink Point-to-Point Protocol (PPP) for up to 128 kbps of ISDN bandwidth
- Simple Network Management Protocol (SNMP) management and multilevel authentication
- Packaged with Cisco ConnectPro, a Windows-based application for installing, configuring, and managing your router
- The Cisco 751 is for international users who require an external NT1 device
- The Cisco 752 provides an optional integrated NT1 telephone interface for North American usage without an external NT1 device and includes an external S/T port to support additional ISDN devices, such as ISDN telephones
- The Cisco 753 includes integrated NT1, an external analog telephone interface, and Cisco's call priority feature that can drop one data channel to accept or initiate a voice call if both B channels are being used for data

Applications

The Cisco 750 series provides dedicated telecommuters with transparent access to enterprise networks while dramatically lowering the initial and recurring costs associated with telecommuting programs.

Take the First Step into the Third Wave of Internetworking.

Cisco's complete end-to-end solution truly extends the enterprise to mobile users and telecommuters with full support for both the user and the network manager. The power of Cisco IOS software software is a secure, seamless thread that connects the considerable benefits of dial-up access to your existing resources while maximizing your investment. Award-winning products that solve compatibility problems, provide asynchronous and ISDN dial-up, and anticipate future technologies reside at both ends and are managed centrally. Cisco-optimized software from the leading vendors in Internet access and dial-up productivity supplies your users with a single, consistent, one-vendor support package. And comprehensive security software that supports the top two security protocols authenticates, authorizes, and accounts for every bit of data.

It took one supplier to accomplish this: Cisco.

We combined our experience and expertise to make universal, multi-protocol dial-up approachable, affordable, and interoperable with your existing equipment, extending the enterprise wherever you need its resources. And we're ready to help you move into the new third wave of networking safely and simply, right now.

Trade In and Trade Up Today—It's the Best Way to Get Started.

Cisco is currently offering a trade-in offer for your access or terminal server equipment when you upgrade to any of our complete line of access servers. It's an attractive discount to get you started, but it's also a time-limited offer with specific conditions, so please read the attached offer for details. And start deciding how far and wide you want to extend your enterprise.

Get More Information Now.

For more information on Cisco's access solutions, call 1-800-553-NETS (6387), contact your local sales office, or visit the Cisco web site at http://www.cisco.com.

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Sales of multiprocessor superservers leap in '95

Appeal of Windows NT helps spur surge

By Jaikumar Vijayan

Sales of multiprocessor-enabled systems to corporations grew sharply in 1995, and analysts said they expect the trend will continue this year.

Server technology

The number of multiprocessor superservers sold increased from 50,300 units in 1994 to 127,000 units in 1995 — a 150% jump, according to a recent report from International Data Corp. (IDC) in Framingham, Mass.

Driving the increase is a growing corporate interest in Windows NT and the availability of multiprocessor technology in lower-priced machines, analysts said.

Worth the expense

Multiprocessors cost more than uniprocessor servers, but one user said the cost is worth it.

"I am going to be doing it for future [upgradability] insurance," said Ben Copeland, manager of information systems at Benton Express, Inc., a freight company in Atlanta.

The spurt in superserver sales caps a year of torrid growth for the PC server industry as a whole. A strong surge in demand from small businesses, combined with sharply higher demand in Europe and Asia and large-scale corporate migrations to Intel Corp.'s Pentium technology, contributed to a bustling 58% growth rate for all servers last year.

Overall, PC server and multiprocessor superserver shipments grew from 536,500 in 1994 to 850,000 in 1995, according to IDC.

Analysts said they expect strong growth this year as well. The same market trends as last year, plus falling prices and an increasing standardization of the technology, are pushing PC servers deeper into the corporate mainstream.

"Windows NT and the growth of Intel-based servers being used as Internet servers, too, will have an impact, especially on the superserver market," said Linda Fitzpatrick, an analyst at IDC.

As a result, users this year can expect top-tier vendors to accelerate their efforts toward building low-cost, tightly integrated PC servers starting at about $3,000.

And those servers will incorporate a range of specialized hardware and software, including more advanced and faster storage capabilities, high-speed network controllers, and configuration and management utilities.

"Vendors are adding a lot of value with things such as ECC [Error Checking and Correction] memory, redundant power supplies, system management software and remote management capabilities," said Jim Garden, an analyst at Technology Business Research, Inc. in Hampton, N.H.

Meanwhile, in the market overall, there were no major shakeups in market status last year. Compaq Computer Corp., IBM PC Co. and Hewlett-Packard Co. dominated the market. Compaq remained far and away the market leader, with a 36% share.

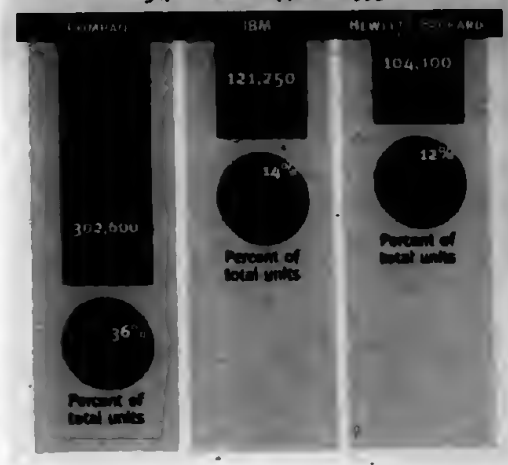
Its status as No. 1 remained largely undiminished (see chart), except for an uncharacteristic blip in the peak fourth quarter, when sales growth dipped below that of the previous quarter as a result of backed-up channel inventory.

Foreign markets

Though it didn't give specific numbers, IDC said worldwide Compaq and Hitachi PC server markets — particularly Japan's — are growing "significantly faster" than the U.S. market.

Best of the bunch

These top PC server vendors sold more than half the 850,000 units shipped in 1995



Source: International Data Corp., Framingham, Mass.

Briefs

New DEC swing

Digital Equipment Corp. last week introduced two high-end additions to its Celebris XL personal workstation family. The Windows NT-based Celebris XL 6180 and Celebris XL6200 feature Intel Corp.'s top-of-the-line 180-MHz and 200-MHz Pentium Pro chips and come with 16M bytes of RAM, a 256K-byte cache, a 1G-byte SCSI hard drive, 64-bit graphics and a four-speed CD-ROM. Prices start at $5,049 and $5,249, respectively. Both systems are available immediately.

Axil adds Solaris

Axil Computer, Inc. has announced a line of SPARC-based Internet servers that run Sun Microsystems, Inc.'s Solaris operating system. The AxilNet machines cost 10% to 25% less than Sun's Netra servers, according to Axil officials. Axil in Santa Clara, Calif., also included a system based on Sun's 64-bit UltraSPARC chip, which is currently available from Sun only in its workstation servers.

Seagate adds 23.4G-byte drive

Seagate Technology, Inc. has announced a 23.4G-byte, 5¼-in. hard disk drive designed for large server installations. Seagate in Scotts Valley, Calif., also will introduce a 4.26G-byte drive for desktop PCs and a 2.25G-byte drive for portable computers. The drives should be available later this year.

New portable hard drives

CMS Enhancements, Inc. in Santa Ana, Calif., last week announced a line of hard drive upgrades for portable computers. The company's 810M-byte and 1.3G-byte hard disk drives were designed to increase storage capacity for portables from such makers as Compaq Computer Corp., IBM PC Co. and Toshiba America Information Systems, Inc. The upgrades are priced at $802 for the 810M-byte and $968 for the 1.3G-byte hard disk drives.

New Products

Regal Electronics, Inc. has introduced a four-speed, five-disc CD-ROM jukebox, Model CDC-4X.

According to the Santa Clara, Calif., company, the Model CDC-4X was designed for graphics-intensive design and multimedia applications. It weighs less than 4 pounds, measures 3 by 6.9 by 9.6 inches and uses snap-secure disc retainers.

The jukebox features a 614K byte/sec. data transfer rate and a 256K-byte buffer. It is compatible with SCSI-II and Macintosh, DOS, Windows 3.1, Windows 95 and Windows NT operating systems.

Model CDC-4X costs $495. Additional cartridges cost $30 each.

▶ *Regal Electronics*
(408) 988-2288

Shinko Technologies, Inc. has unveiled ColorStream II, a color printer.

According to the Hayward, Calif., firm, ColorStream II is a dye-sublimation color printer with imbedded Adobe Systems, Inc. PostScript Level 2 support and professional color-matching software. It was designed for the graphic arts, prepress and publishing markets.

ColorStream II features 300 by 300 dot/in. resolution and color calibrating software for accurate color matching. It has a RISC processor to speed up file processing, 16M bytes of RAM and a 543M-byte internal hard disk drive. It includes FasterRaster, an Adobe PhotoShop driver that talks directly to the printer for faster send and print times.

Pricing for ColorStream II starts at $7,995.

▶ *Shinko Technologies*
(510) 441-1175

Falcon Systems, Inc. has introduced ReelTime, a RAID system.

According to the Sacramento, Calif., company, ReelTime delivers high-capacity storage, high-speed I/O throughput and hot-swappable components to users of Onyx and Challenge workstations from Silicon Graphics, Inc. It was designed to allows choices in storage capacity, disk drive form factors and RAID levels. It has a dual-controller architecture, with each controller supporting seven drives per disk channel.

ReelTime supports 5¼-in. full-height drives. Full- or half-height, single-ended and differential drives can also be used. All drives can be narrow or wide and are hot-swappable. It features audible alarms when faults occur.

Pricing for ReelTime starts at $18,000 for an entry-level system.

▶ *Falcon Systems*
(916) 928-9255

Argent Software, Inc. has unveiled Quota Server 2.1 for Windows NT.

According to the Torrington, Conn., company, Quota Server 2.1 lets a site set and monitor disk quotas on Windows NT. For each object on a disk, a site can set a quota and define executable actions when certain threshold levels are exceeded. It also monitors disk-consuming applications.

Quota Server defines three threshold levels as a percentage of the disk quota for actions to be taken. For each level it attains, measures can be taken, including notifying the end user, notifying the administrator, locking objects and writing to the event log. It includes a command-line utility that lets users import and export large numbers of quotas between spreadsheets and database programs.

Pricing for Quota Server starts at $2,000.

▶ *Argent Software*
(203) 489-5553

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Sure, you might get lucky. On the other hand, you've got a lot to lose. That's why, when purchasing software, you'd better know exactly what you're getting into.

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LAWSON THE LAST TIME YOU'LL CHANGE SOFTWARE COMPANIES.

Bristol Technology and Mainsoft port Windows apps to Unix, 46

Software

Geographic database finds home on the 'net

By Dan Richman

It's late at night. You're driving the back roads through Sacramento, N.M., and Miami, Ariz., on your way to Atlanta, Calif.

No, you haven't just entered the Twilight Zone.

You're probably an Internet cruiser who has entered the World Wide Web site for the National Geographic Names Database, the nation's official compendium of correct place-names. Or you work at a company that has purchased the CD-ROM version of the database to find, for example, hospitals below 4,000 ft. elevation.

Where to find it

The place-names database can be found at http://www-nmd.usgs.gov/www/gnis. It is also available as a CD-ROM called the Digital Gazetteer of the U.S. and sells for $57 at any of the 10 Earth Science Information Centers.

A pharmaceutical company recently did this to help it test a drug that might have been dangerous to patients located above that height. A Virginia contractor used the database to locate all reservoirs in the state in an attempt to solicit business maintaining them.

The 1G-byte Oracle Corp. database is maintained on a Data General Corp. Aviion server in Reston, Va., and contains the names and locations of about 2 million geographic features in the U.S. It catalogs rivers, cities, arroyos, sloughs, isthmuses, swamps, hamlets, shopping centers and cemeteries. It even contains settlements that have been long abandoned and shoals now washed away.

"If it has a name, or had one, odds are about 75% it's in there," said Roger L. Payne, an official at the U.S. Board of Geographic Names, the federal organization charged with providing uniformity in geographic naming and spelling. Between 5,000 and 10,000 new entries are made per month, mostly from local maps, Payne said. The database will be complete by 2006, he said.

About 2,000 CDs have been pressed since September 1993, when the Digital Gazeteer first became available, and about 10% have gone to private industry, said John Shanton, a spokesman at the Earth Science Information Center. The remainder of the CDs have gone to federal agencies such as the Federal Emergency Medical Agency, historical researchers, libraries, genealogists, mapmakers and search-and-rescue organizations.

What's in a name?

The U.S. Board of Geographic Names maintains the National Geographic Names Database, which tracks the name of every geographic entity in the U.S., including these rather unique ones:

- Los Angeles, Texas
- Dallas, S.D.
- Atlanta, Calif.
- Toledo, Wash.
- Santa Fe, Ill.
- Spokane, La.
- Des Moines, N.M.
- Beverly Hills, Va.
- Syracuse, Neb.
- Trenton, Maine
- Akron, Ala.
- Boston, Ohio
- Atlantic City, Wyo.
- Buffalo, Mont.
- Denver, Tenn.
- Miami, Ariz.
- Reno, Minn.
- Philadelphia, Ark.
- Austin, Utah

Until last September, the National Geographic Names Database was housed on an Amdahl Corp. mainframe. It was moved to Oracle in a client/server environment mainly to offer Internet access, which was impossible on the mainframe, staffer Rebecca Bish said.

One copy of the database has been designated as the working copy. Data is added by three on-site workers and a cadre of contractors who mail in floppy disks full of data from across the country.

A second copy, which serves internet visitors, is updated once a week through a snapshot, a standard Oracle replication feature. The two copies of the database are separated so Internet calls won't bog down in-house performance, Bish said.

Microsoft Office 95 reference books aplenty

Working in Microsoft Office (by Ron Mansfield; Osborne/McGraw-Hill, Berkeley, Calif.; 1,000 pages; paperback; $34.95) is a handy guide for end users. It provides an overview of all the components of Microsoft Corp.'s Office for Windows 95 and then delves in to detail about each one. It explains how to switch among applications and how to use the Clipboard to share information, templates and wizards.

There are chapters on Word, Access, Excel and other applications included in the Office Professional suite. The book is easy to read, although its sheer volume can make it a bit unwieldy. Still, it's a worthwhile guide.

Then there are three separate Office books from Microsoft Press in Redmond, Wash. The first, *Running Microsoft Office for Windows 95* (by Michael Halvorson and Michael J. Young; 1,049 pages; paperback; $29.95), is the most in-depth reference of the three. Like the book above, it first offers an overview of Office and then goes into detail about each of the four basic Office applications — Word, Access, Excel and PowerPoint. There is a chapter about integrating the applications and a handy fold-out tips guide on the inside back cover.

And, like the book above, it assumes nothing and is easy to follow — but for some reason, this book's typeface was harder on the eyes. It's probably just my eyes.

The second book, *Microsoft Office 95 Integration Step by Step* (by Catapult, Inc., a training company; 352 pages; pa-

Microsoft Office, page 50

PowerCerv to let users customize software

By Julia King

Users of client/server software have come to begrudgingly accept that off-the-shelf packages typically fulfill 80% or less of their business requirements.

The other 20% are usually satisfied with more specialized programs or costly customized systems. Another route some companies take is to change their internal business processes to conform to packaged systems.

Adapt it

PowerCerv Corp. is looking to change the 80/20 rule. This week, the Tampa, Fla., software company will announce a new object extensible architecture (OEA) that it is incorporating into its suite of packaged client/server applications, known as Adaptlications. OEA enables Adaptlications users to rapidly customize the software to meet their individual needs.

"Rather than coming in with a fixed set of applications with deep functionality, what PowerCerv does is give you a tool kit to let you build what's best for you," said Marc Lynn, information systems director at Automated Packaging Systems, Inc., a $115 million manufacturer in Streetsboro, Ohio. The company recently purchased Adaptlications manufacturing and order management software. Other packages in the suite include financial and help desk applications.

PowerCerv, page 46

Users spurn Windows/Unix porting tools

By Frank Hayes

Porting Windows applications to Unix seems like it should be a corporate developer's dream. But customers aren't buying it.

Vendors such as Bristol Technology, Inc., Mainsoft Corp. and Willows Software, Inc. offer tool sets that let developers easily port Windows C++ applications to other platforms, including Unix and Digital Equipment Corp.'s OpenVMS.

And in recent weeks, Bristol in Ridgefield, Conn., and Mainsoft in Sunnyvale, Calif., have announced versions that will even support Microsoft Corp.'s OLE 2.0, an object system for letting applications communicate with one another (see chart).

Not an thrilled

So why aren't corporate developers wild about Windows-on-Unix?

"These tools are great if you spent a lot of time developing a program for Windows, and suddenly your management turns around two weeks before it's due to be released and says, by the way, this has got to run on Unix, too," said John Howie, a consultant who is developing financial trading applications for Reuters Analytics Group in Stamford, Conn.

But for more conventional situations in which developers would need to build for multiple platforms, a development environment designed for that task is better, Howie said.

Bristol and Mainsoft acknowledge that most of their customers are independent software vendors. But they insist that will change as corporate developers start to see the advantages of these tools.

Perhaps. But corporate developers are leery of tools that promise they can port C++ applications from Windows to Unix at the last minute.

"If you assume you can develop for Windows and then just do a quick port at the end if you need to, there will be surprises that are going to come up," said Matt Rosen, assistant director of technical services at San Joaquin Delta College in Stockton, Calif. Developing for multiple platforms "really requires a lot of forethought," he said.

Missing pieces

Corporate client/server applications often depend heavily on third-party middleware, databases and other elements that aren't part of the Windows interfaces that porting products support, Rosen said.

That means crucial elements such as messaging, object services and even fonts may be missing from an application's target platform.

"Going from Macs to Windows and Unix, there are cases where we've had to design our own services for now and just wait until there are standard services available on all the platforms we need," Rosen said.

"These tools do their job very, very well," said Howie, who has tested products from Bristol, Mainsoft and Willows. "But the last thing you want to do is write this terrific application targeted at Windows or Windows NT, in the belief you can just port it over at the very last minute by using a porting tool, and then find that you're using something that's not supported."

OLE without Windows

The following tool suite for porting Windows applications to Unix can support OLE 2.0

Bristol Technology Ridgefield, Conn.	Wind/U	SunOS, Solaris, HP-UX, AIX, Digital Unix, OpenVMS	Now	$5,000 to $9,000
Mainsoft Sunnyvale, Calif.	MainWin	SunOS, Solaris, HP-UX, AIX, Digital Unix, Irix, SCO Unix	Q2 1996	$5,000
Willows Software Saratoga, Calif.	Twin	SunOS, Solaris, HP-UX, AIX, Digital Unix, Irix, SCO Unix, Linux, MacOS, NetWare	Late 1996	$250 per operating system version

PowerCerv to let users customize software

CONTINUED FROM PAGE 45

All Adaptfications programs are written in Powersoft Corp.'s PowerBuilder. Pricing for a system that includes manufacturing and financial software for 75 users ranges between $200,000 and $400,000.

PowerCerv also provides customers with an object-class library and software tool set that users can employ to modify the core applications on a case-by-case basis. Users can do their own modifications or have PowerCerv do them.

A key benefit for users under this hybrid approach is the ability to upgrade to new versions of Adaptfications software without having to rewrite previous customizations, according to Bernie Borges, PowerCerv's vice president of marketing.

This is because under PowerCerv's application architecture, software objects that represent a particular business process — such as how a company accepts returned merchandise — are kept in separate "layers" from other technical objects that handle application functions such as security and workflow.

"Some application layers are owned by customers and some by PowerCerv, so when we give a customer a new version, they simply put in the new PowerCerv layers, keep their own layers and recompile. They don't make changes in a monolithic piece of source code," Borges explained.

This can shave months from the time it takes to implement a customized software system, he added.

"What they're saying is users can bend the software more to meet their process rather than bending themselves to meet the software," said Barry Wilderman, an analyst at Meta Group, Inc. in Stamford, Conn.

This flexibility is one of the main reasons Automated Packaging Systems (APS) bought the software, according to Lynn.

APS is implementing the packages as part of an overall reengineering of its order-to-cash process. The software is running on a Hewlett-Packard Co. Unix computer equipped with Sybase, Inc.'s System 10 relational database management system.

Under the old system, which Lynn described as "a Cobol tumor running on a minicomputer system," users had devised so many workarounds that it was impossible to differentiate between a workaround and a true system requirement.

So Lynn set up what he called a "conference room pilot project" under which users could experiment with the Adaptfications software by quickly creating and trying out different modifications on a demonstration system set up in a company meeting room.

"Before, we didn't have the technology and tools to allow it to be done this way, so we forced users to prespecify," Lynn said.

Adaptfication pieces

PowerCerv's object-oriented Adaptfications client/server suite includes the following:

- Intergy, a suite of nine financial applications.
- Xceed, a sales force automation system.
- Response, a help desk/customer-support system.
- PowerMan, an interactive manufacturing resource planning system.
- PowerCom, a customer-order-management system.

New Products

Softlab, Inc. has introduced Maestro II 2.2, a maintenance and redevelopment environment.

According to the Atlanta company, Maestro II 2.2 is a client/server-based product that provides an infrastructure for all phases of the maintenance and redevelopment of legacy PL/I language applications. It includes application navigation tools and enhanced Cobol scanning features.

Maestro II 2.2 costs $10,000 per workstation.

▶ *Softlab*
(770) 668-8811

Platinum Technology, Inc. has introduced Final Exam Internet Test and Final Exam Internet Load Test, two tools for testing World Wide Web applications.

According to the Oakbrook Terrace, Ill., company, the two tools test Web applications before deployment and predict response time on clients and thresholds on servers. They also assist in planning the best hardware configuration for anticipated network Hypertext Markup Language (HTML) traffic.

Final Exam Internet Test supports HTML objects and provides a capture/replay process to ensure thorough testing of applications that use Web browsers.

Final Exam Internet Load Test is a systems tool that analyzes the performance of clients and servers in Internet applications in response to various Web-use load levels.

The Final Exam Internet tools are available in a bundled package for $2,995. Separately, Final Exam Internet Test costs $995 for a developer's license and $295 for a tester's license.

Demo versions are available at http://www.platinum.com.

▶ *Platinum Technology*
(708) 620-0710

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Alan R. Josefsek, Managing Director, Information Systems Div., Sedgwick James, Inc.

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Symantec sets sights on File Explorer

By Stuart J. Johnston

Symantec Corp. is preparing a replacement for Windows NT's file manager utility that will give users of Windows NT 3.51 a file management tool that looks very similar to Windows 95's File Explorer.

Early users say the product has the intuitive look and feel that Microsoft Corp.'s Windows 95 File Explorer has. But the Norton File Manager Preview Edition for Windows NT also provides several important functions that File Explorer doesn't. Among these features are the following:

File management

- Network file management lets users browse network drives and perform file operations without having to map selected drives.
- File transfer protocol (FTP) sites appear on the file and subdirectory tree just as if they were subdirectories on the user's drive. Files can be retrieved from the network simply by dragging and dropping them.
- File compression and decompression can be done on the fly by dragging and dropping files on compressed or decompressed directories.
- Users can easily apply the Internet uuencode and uudecode compression and encrypt or decrypt files.

"I have about a gigabyte of [compressed] files, so being able to just click on [a file to decompress it] without having to open a separate viewer is really valuable," said Jeffrey Lathrop, an independent programmer and consultant in the Denver area.

Even after Windows NT 4.0 ships this summer, "I still have a use" for Norton File Manager for Windows NT because of the compression/decompression and the uuencode and uudecode functions built in to it, said Bob Parsons, a supervisor at the Park County Weed and Pest Control department in Powell, Wyo.

"I like the flexibility, the ease of use and especially the FTP functions," said Sean Martin, a workstation technical support analyst at the Information Systems & Services division of Texas Instruments, Inc. in Plano, Texas. The file compression and decompression features are "very fast," Martin said.

The Norton File Manager Preview Edition for Windows NT can be downloaded from Symantec's on-line locations, including the company's FTP site on the Internet (ftp.symantec.com).

But the Preview Edition will stop working March 31, after which Symantec will sell the final release package. Pricing hasn't been announced.

The Norton File Manager Preview Edition for Windows NT requires Windows NT 3.51 that runs on an Intel Corp. 1486-based PC or higher with 12M bytes of RAM and 64M bytes of free hard-disk space.

Web bound

Vendors besides Transarc that are developing products for connecting Web users to DCE networks

Gradient Technologies Web-enabled DCE client	Full DCE code that runs on Web browsers	Q2 1996
Open Horizon Connection for Java	Java applet with optional DCE client support	May
Open Software Foundation DCE-Web	Integrated Web/DCE server plus Web-to-DCE gateways	Late summer

DE-Light shadowed by security concerns

Software connects 'net users to DCE

By Craig Stedman
PALM HARBOR, FLA.

Transarc Corp. late this month will ship Java-based software that connects Internet users to Distributed Computing Environment (DCE) networks that run its Encina transaction manager.

The rub is that World Wide Web-based PCs that use the DE-Light software won't be protected by the Kerberos security mechanisms in the Open Software Foundation's DCE technology.

Risky business

Transarc initially is relying on a proprietary technique for scrambling user passwords, but determined hackers may be able to break the code, company officials acknowledged.

On the other hand, neither DCE nor Encina code is needed at clients, which reduces costs and installation headaches.

Another bright spot

A non-Internet version of Transarc's DE-Light was also introduced for connecting Windows 3.1 clients to DCE networks. That version is available now; an early release of the Java-based product is scheduled to ship March 31.

DE-Light was introduced at Decorum '96, a Transarc-sponsored DCE conference that was held here late last month.

The software runs on a Web server and downloads applets written in Java, Sun Microsystems, Inc.'s Internet programming language, to Java-enabled Web browsers.

The applets communicate with DCE and Encina services through a gateway included with DE-Light.

Rather than put DCE and Encina code, which costs about $250, at every Web client tied into the network, DE-Light customers would pay a $2,000 base fee plus $100 for each active connection to the gateway.

Companies could provide access to a lot of users and pay for a smaller number of live connections, Transarc officials said.

Ron Hoyer, an information technology analyst at Deere & Co. in Moline, Ill., said DE-Light looks attractive from a cost and flexibility standpoint.

But the security issue "is definitely a factor," he said. "It's like Fort Knox from the Web server back into the [DCE network], but it's still kind of open out to the client."

A Decorum attendee from a major financial services company that is considering using DE-Light to provide Web-to-DCE access for its customers said there are still "a couple of things that I'm looking for" from a security perspective. "But they're getting close," said the user, who requested anonymity.

Can't please everyone

Pat Stephenson, one of the lead developers for DE-Light at Transarc, said the Pittsburgh-based IBM subsidiary left DCE security out of the product in order to chop it down to the desired size.

"We wanted to keep the client small, and Kerberos isn't small," Stephenson said. "Some people are happy" with the proprietary password scrambling, and "some people are not," he conceded. He said Transarc hopes to add support for Netscape Communications Corp.'s more robust Secure Sockets Layer encryption technology to DE-Light later this year.

Besides its potential for cutting costs at the client level, DE-Light removes the need for system administrators to set up Web-based users as members of a DCE network.

Fidelity Investments, Inc., a mutual funds company in Boston, said it expects to use DE-Light but declined to comment further about its Web-to-DCE plans.

Netscape/Aurum pact may boost Web potential

By Mindy Blodgett

The belief that the Internet will one day be an effective corporate sales and marketing tool got a boost recently with an agreement between Aurum Software, Inc. and Netscape Communications Corp.

Aurum, which provides sales force automation software, announced it will integrate its SalesTrak and WebTrak software with Netscape's Navigator client software.

Improved database

The Aurum/Netscape match will create a more efficient relational database that can be used to catalog customers and follow leads that are generated by hits to corporate World Wide Web home pages, the vendors said.

Analysts agreed.

"This strategic alliance will be a big boost to both of these businesses and will [give] corporate users the ability to more effectively trace sales leads," said Judith Hodges, an analyst at International Data Corp. in Framingham, Mass.

Netscape and Aurum hope to devise products to make it easier for Web users to

- Manage direct mail campaigns
- Manage Web marketing encyclopedias
- Improve lead generation management
- Support customer call entry, call status and product feedback

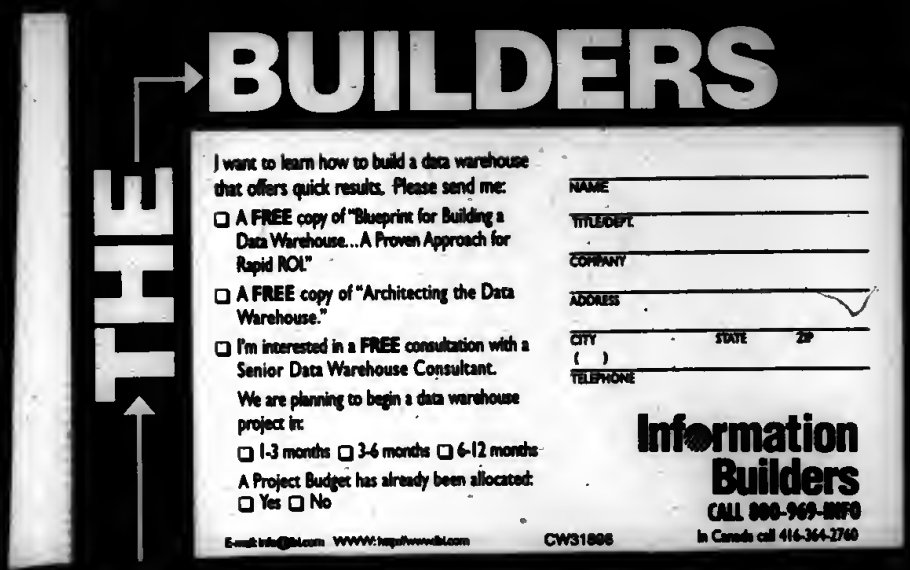
Fateesh Lele, senior vice president and chief information officer at Telogy, Inc., an electrical test equipment manufacturer, in Menlo Park, Calif., said his goal is to use the Web as a sales channel.

He said he uses WebTrak, which costs about $10,000. He said he is working with Aurum to improve the product's effectiveness. "We want to allow the customer to be able to find what they need on our home page and make the purchase with a credit card," Lele said.

"We want you to be able to come through the Web and purchase something in minutes — when it might take a salesperson six months to do the sale," Lele said.

Ken Dulaney, an analyst at Gartner Group, Inc. in San Jose, Calif., said the Web is currently "more of an advertising vehicle."

"Once you have companies naming a vice president of Web sales, and [once] software such as WebTrak truly offers you a sales channel and not just a sales tool, then you will really have something," Dulaney said.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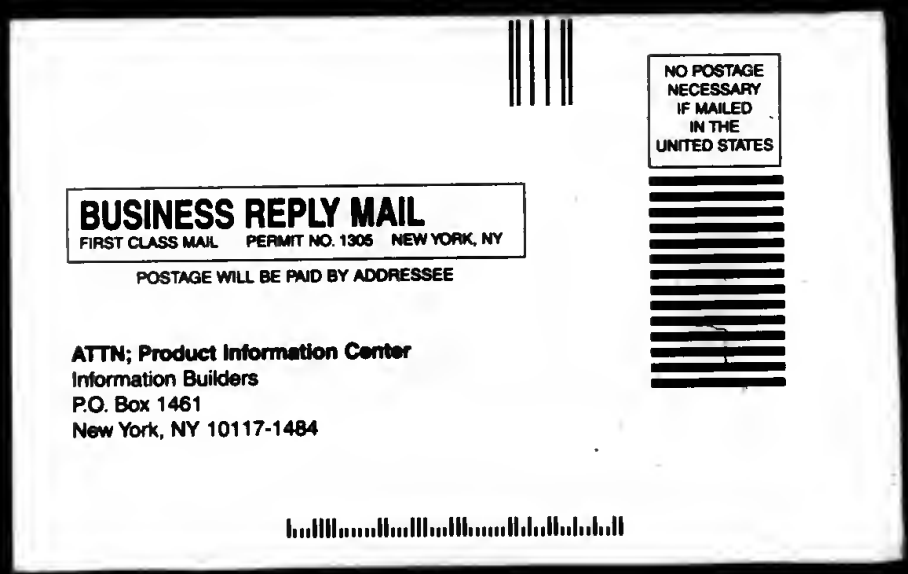

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New Products

Chicago-Soft Ltd. has introduced its latest product, WinMiser Pro, a Windows memory utility.

WinMiser Pro is a memory efficiency and analysis tool designed for Windows 3.x users.

According to the Hanover, N.H., company, the product protects Windows DOS memory, analyzes insufficient memory errors, recovers memory lost to programs leaking memory and automatically releases unused memory.

WinMiser Pro isn't a RAM-doubling or RAM-tripling product. It was designed as an analysis and recovery tool.

WinMiser Pro costs $59.

▶ *Chicago-Soft*
(603) 643-3014

Media Lab, Inc. has introduced PhotoCaster, supporting software for the company's multimedia development program, Macromedia Director.

According to the Louisville, Colo., company, PhotoCaster lets users import Adobe Systems, Inc. Photoshop 3.0 files directly into a Director cast window and place different layers of Photoshop files into separate cast members. Users can then anti-alias the files while maintaining registration points and index them to a superpallette.

PhotoCaster costs $99. A demonstration version is available at http://www.medialab.com/software/.

▶ *Media Lab*
(303) 499-5411

Fujitsu Systems Business of America, Inc. has introduced LiveHelp, help desk remote control software.

According to the Santa Clara, Calif., company, LiveHelp gives help desk personnel remote control and screen-sharing capabilities for real-time, on-line support and training.

LiveHelp was designed to let help desks teach users, guide them to answers and cut down on repetitious help calls.

Remote users can access LiveHelp through LANs, wide-area networks and modem connectivity. The product includes drawing tools and whiteboard functions. It operates on Microsoft Corp.'s Windows 3.1 and Windows 95.

Pricing for LiveHelp clients starts at $175 for a 10-user pack.

▶ *Fujitsu Systems Business of America*
(408) 988-8012

Application Development: Tools for Distributed Computing

A White Paper brought to you by *Computerworld* and *Software Magazine*.

Learn about the various applications being built and tools being used by organizations today for distributed application development and what the trends are in the 3GL RAD, 4GL RAD, 4GL, CASE and database markets. This White Paper will include current information based on the recently completed Strategic Software Investment Survey conducted by IDC.

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Custom Publications SOFTWARE

Microsoft Office

CONTINUED FROM PAGE 45

perback; $29.95) focuses entirely on how to exchange data, charts and other kinds of information among the Office applications. It explains how to import files, link objects and copy files.

The chapters are logically broken down by application, so the reader can easily find information about using spreadsheet data in Word or writing a report using a database, for example. A floppy disk in the back of the book includes lessons and exercises to reinforce learning.

Finally, *The Ultimate Office Book* (by Eric Stroo; 341 pages; paperback; $24.95) is for the more advanced user. It assumes the reader already knows the basics of Windows 95 and the individual Office applications. It doesn't explain how to use dialog boxes or how to open files, for example. It does talk about the most effective ways to use the applications separately and together, and it explains the more advanced concepts such as formatting objects.

And the book's screen shots and other visual helpers are in full-blown, living color, making it that much easier to follow the bouncing cursor.

— Johanna Ambrosio

Memotec tool optimizes frame-relay link, 55

The Enterprise Network

Reeling from remote

By Mindy Blodgett

Training users on a new remote access implementation took more time and energy than James Moore had originally anticipated.

"In the beginning, I had no life," said Moore, a senior project manager at a Bank of America unit in Phoenix. "I took in just a massive amount of questions every day. My voice mail can take up to 52 messages, and it would get full every single day."

The frenetic pace of providing ongoing support and ad-hoc training to puzzled users has slowed down for him now that 30 mobile and remote workers and about 160 branch office users are up to speed.

What's hiding

Moore's time-consuming experience with a remote access rollout is typical and highlights hidden costs such as support, according to industry observers (see chart).

While remote access installations tend to focus on the costs of hardware and software that is used in the field and to connect back to the central data stores, these costs often do not present the whole picture.

Costs hidden in remote access projects include support, training and configuration. One study by Infonetics Research, Inc. estimated that those factors account for as much as 35% of the true cost of remote access.

Despite the pitfalls of remote access projects, users say they are worth it. The projects save time and increase productivity.

"We can do much more now in a much shorter period of time," said Steve Wittmer, a network manager at Centex Construction Group, Inc. in Dallas.

Centex uses remote access technology to link its main office to regional offices and a constantly changing number of construction sites. Wittmer said users relied on faxing and overnight mail before they gained remote access technology.

Improving communications, particularly eliminating the need to exchange paper, was cited by users as a major advantage of remote access. Users also said remote access brings users closer to the customer, which improves productivity.

Wittmer said the biggest surprises of his company's remote access installation were the training issues and the problem of working with a disparate range of hardware.

Typical installations cost an average of $10,000 per user according to the Infonetics study. And before the installation is even under way, companies must focus on training and support issues, industry observers say.

Closer Look
Remote access

"The problem is that 95% of mobile workers do configurations and installations themselves and then spend an average of five to six hours a month fussing with the technology, trying to get it to work rather than doing their jobs," said Michael Howard, an analyst at Infonetics in San Jose, Calif. "This takes away from the reasons the company has turned to remote access — to be closer to the customers and to make their jobs more efficient."

Howard said companies should spend more time and money on their initial training programs and on beefing up the remote access support skills of the central IS staffs.

Tripped up

Unexpected costs are an issue for Dave Turner, networking marketing manager at Cessna Aircraft Co. in Wichita, Kan. He said training and hardware and software enhancements are the kinds of costs his company has stumbled over as it starts a massive remote access implementation.

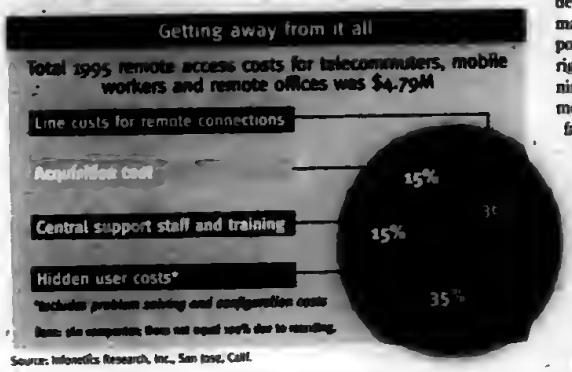
Route of telecommuting

Some 33 million U.S. workers will telecommute or work remotely by the year 2000, according to John Gleed, an analyst at Gartner Group, Inc. in Stamford, Conn.

Cessna is outfitting field service workers who diagnose aircraft repairs and globetrotting sales representatives with IBM laptops.

The company is conducting a pilot program that has the sales force using the laptops and remote connectivity hardware and software from SBE, Inc. in San Ramon, Calif.

Turner said users should definitely focus as many resources as possible on training, right from the beginning. And, he said, "remote connectivity is a fairly straightfoward issue. But, depending on the users in the field, their training, the support they get and the technology you buy, it can be a major success or failure."


Getting away from it all
Total 1995 remote access costs for telecommuters, mobile workers and remote offices was $4.79M
Line costs for remote connections
Acquisition cost
Central support staff and training
Hidden user costs*
15%
15%
35%
*includes problem solving and configuration costs
Note: pie segments does not equal 100% due to rounding.

Source: Infonetics Research, Inc., San Jose, Calif.

What's on tap?

Remote access technology moves so rapidly that keeping up with it can be daunting. Here are some of the latest advances:

- Remote access leader Shiva Corp. in Burlington, Mass., has added Tariff Management to its entire product line (see story, page 56). The company aims to ease management of Integrated Services Digital Network lines for corporate users.
- Software vendors are including Internet access capabilities in their remote access offerings. For instance, Traveling Software, Inc. added remote Internet access to the latest upgrade of its LapLink point-to-point remote control product.
- More notebooks with cellular-ready modems are on the way, as well as modems that offer wired and wireless connectivity features.
- Users also are waiting for more routers that support frame relay, an increasingly popular technology.

— Mindy Blodgett

Flipping the remote access switch

A new standard could save remote access users money.

The Bandwidth Allocation Control Protocol (BACP), drafted by eight vendors, is aimed at saving users airtime with on-and-off bandwidth capabilities.

Remote users currently access corporate networks via Integrated Services Digital Network (ISDN) or dial up to public networks. The new protocol would let devices combine the two 64K bit/sec. B channels on an ISDN line to form a 128K bit/sec. connection.

BACP, which is being considered by the Internet Engineering Task Force, would add or drop dial-up and ISDN lines as bandwidth needs change. Unneeded channels would go unused and save the user money. Microsoft Corp., Cisco Systems, Inc., Bay Networks, Inc., 3Com Corp., U.S. Robotics, Inc. and Xylogics, Inc. are leading the effort.

Products that support BACP are expected in the next few months.

— Mindy Blodgett

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Memotec CX900 will add links to frame chain

By Bob Wallace

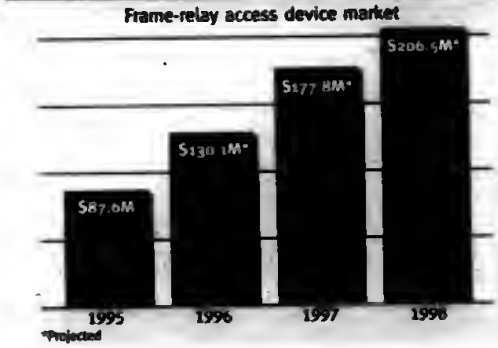
Memotec Communications, Inc. will announce at Networld/Interop '96 in early April a remote office product that lets information systems managers save big by running voice, legacy data fax and LAN traffic over one frame-relay link.

The planned six-slot Memotec CX900 can house modules that support voice over frame relay. It also has a wealth of wide-area network backup link options. These features differentiate the frame-relay access device (FRAD) from other recently announced units, said sources who requested anonymity.

This type of device "can reduce the cost of network operation and ownership by up to 80% for companies with multiple networks, while significantly simplifying network administration," said Christine Heckart, an analyst at TeleChoice, Inc. in Verona, N.J. Heckart said users can reap cost savings in equipment, access lines, wide-area lines and network administration.

FRAD flys

Frame-relay access device market



*Projected

Source: Vertical Systems Group, Dedham, Mass.

More options

One company that already runs data and fax over a single frame-relay network is interested in adding voice to that mix.

"We're looking at the Memotec product, and we're pretty excited, though we'll be looking for them to price the box at about $1,500 to $2,000 each," said Phil Marzullo, vice president and chief information officer at REN Corp. in Nashville. Pricing was not available, but Marzullo said he had spoken with Memotec, and "it looks like they're going to hit that ballpark, which is important for us because we have lots of really small sites."

REN installed a frame-relay network about two years ago to support messaging and some LAN traffic. The network links kidney dialysis sites to the company's headquarters. "We love frame relay and expect to have over 100 sites on-line in two months," Marzullo said.

The CX900 can support Ethernet and Token Ring LANs and any combination of IBM SNA and older data protocols, said sources who requested anonymity.

And because the WAN data line is cost-justified for data traffic alone, voice traffic generated at the remote site rides the frame-relay link for free.

The CX900 can support a frame-relay link that runs at up to T1 speed (1.544M bit/sec.).

For linking LANs, the CX900 supports transparent bridging, Source Routing and Source Route Transparent, both schemes for linking Token Ring networks, Internet Protocol, Novell, Inc.'s IPX and Open Shortest Path First routing with filtering, sources said.

For IBM networking, the CX900 supports SNA and Synchronous Data Link Control (SDLC), as well as SDLC-Logical Link Control, which enables users to move from private-line data networks to frame relay, which is roughly 30% to 40% cheaper.

The CX900 comes with a built-in device that enables it to support a 56K bit/sec. backup WAN link. An optional module lets the FRAD send traffic from the remote office over a 128K bit/sec. Integrated Services Digital Network Basic Rate Interface line, if needed. The box also can support a 28.8K bit/sec. dial-up link, the sources said.

The CX900 is scheduled to ship May 31. Memotec in Montreal declined to comment on unannounced products.

Novell upgrades its TCP/IP software; native support on way

By Laura DiDio

Novell, Inc. has enhanced its TCP/IP software for NetWare 4.1, simplifying management of IP-based networks and giving mobile users Internet access to the corporate network.

NetWare/IP 2.2 makes it easier for users to integrate NetWare 4.1 with TCP/IP-based networks.

Businesses can still use Novell's proprietary IPX/SPX protocol on their LAN and move to an all TCP/IP-based network "at their leisure," said Michael Simpson, a product line manager for NetWare.

Novell's latest TCP/IP software package also lets mobile users with a Serial Line Internet Protocol or Point-to-Point Protocol connection use a local Internet provider to access the corporate Novell network. This can reduce a corporation's recurring telephone line costs.

Benefits abound

Information systems managers said cost savings aren't the only advantage.

Administrators may find it easier to manage networks because they will be able to view both sides of a TCP/IP link, and users will get increased access.

"Administrators and users will all benefit by getting access to servers and data on both sides of the link using TCP/IP," said Maj. Barrie Wheeler of the Air Force Command Control Communication and Computer Agency at Scott Air Force Base in Belleville, Ill. The agency will use NetWare/IP 2.2 to build an IPX-to-TCP/IP wide-area link by using the Internet instead of a more expensive dedicated private network.

NetWare/IP 2.2 provides a dual-purpose Dynamic Host Configuration Protocol (DHCP)/Boot Server facility to boost NetWare 4.1 throughput across the wide-area network. DHCP is a server-based utility that simplifies the management of TCP/IP user addresses.

In previous versions of NetWare, network administrators manually assigned a permanent TCP/IP address to every user, which was time-consuming and unwieldy.

Now, administrators can deploy DHCP to manage a pool of available IP addresses and automatically assign them to end users as needed, noted Neil MacDonald, a senior research analyst at the Gartner Group, Inc., a consultancy in Stamford, Conn.

"DHCP acts like a rental car agency: It leases the same TCP/IP address over and over for only as long as users need the connection. Businesses aren't continually adding IP addresses and overloading their servers; they leverage what they've got," MacDonald said.

Native support

MacDonald praised Novell's TCP/IP support, calling it "a good, though not-pure, TCP/IP" implementation.

Pure TCP/IP won't come until the middle of next year, when Novell is expected to ship native TCP/IP support bundled into NetWare.

Native TCP/IP support won't require users to install any extra client software, as they must do now with NetWare/IP 2.2.

NetWare/IP 2.2 software doesn't consume significant memory or network bandwidth, but it does chew up a lot of the administrator's time installing and configuring it on each user workstation, MacDonald said.

Ipso facto

NetWare/IP 2.2 now ...

- Supports DHCP/BootIP for easy manageability of IP addresses
- Lets Windows NT Workstation users access NT Server services via TCP/IP
- Enables NetWare users to access Unix and other IP-based network printers
- Improves NetWare performance over the WAN by eliminating the Service Advertising Protocol traffic and freeing bandwidth
- Supports Microsoft's 32-bit Windows 95 and Windows NT Workstation TCP/IP stack
- Available, free of charge, via the World Wide Web at http://netware.novell.com

Briefs

Spectrum adds nerve

Cabletron Systems, Inc. has enhanced the alarm management capabilities of its Spectrum network management platform through a partnership with Seagate Enterprise Management Software, Inc. in Cupertino, Calif. Spectrum users will be able to apply Seagate EMS' NerveCenter event-correlation software and available rule sets.

Wall Data simplifies E-mail system

Wall Data, Inc. in Kirkland, Wash., has rolled out software that lets users run only one electronic-mail software package to communicate with multiple LAN-, midrange- and mainframe-based E-mail systems in the company. Rumba Mail lets users manage their E-mail from one mailbox. Previously, users had to open and close several software packages to get their E-mail because the systems couldn't communicate. The software doesn't require a mail server gateway or the writing of any proprietary host or server code. Rumba Mail costs $4,100 per user for up to nine users.

Amdahl gets Bullish

Amdahl Corp. plans to sell and support the systems, network and security management suite from Groupe Bull. The partnership seeks to help Amdahl customers worldwide gain control of IBM-compatible host environments and distributed client/server networks through the integrated ISM/OpenMaster tools.

Shiva eyes simpler LAN setups

By Mindy Blodgett

ISDN connections for remote users often end up frustrating users and network managers alike. But Shiva Corp. last week announced server and software upgrades that promise easier setup and lower connection charges.

Shiva's LanRover/Plus 4.0 remote access server will give users the choice of Integrated Services Digital Network Basic Rate Interface (ISDN BRI) hardware modules, high-speed modems or serial cards — all in one modular platform. The inclusion of the ISDN BRI modules gives dial-in users access to two 64K bit/sec. B channels for much faster, 128K bit/sec. throughput.

Even more remote

Between now and next year, companies will increase the number of workers allowed remote access by about 30%, according to Infonetics Research.

Shiva in Bedford, Mass., also updated its Shiva operating system (ShivOS) software to include the following features:

- Tariff Management technologies, which create "virtual connections" for users on client-to-LAN environments. The technology minimizes connection costs by "spoofing" — keeping dial-in links active only when data is actually being sent or requested.
- A wizard connection that guides users through file setups, thus reducing user frustration.
- Enhanced management and security, achieved by adding Management Information Bases and support for various third-party security software packages.

For Steve Wittmer, network manager at Centex Construction Group, Inc. in Dallas, the Tariff Management technology is particularly appealing.

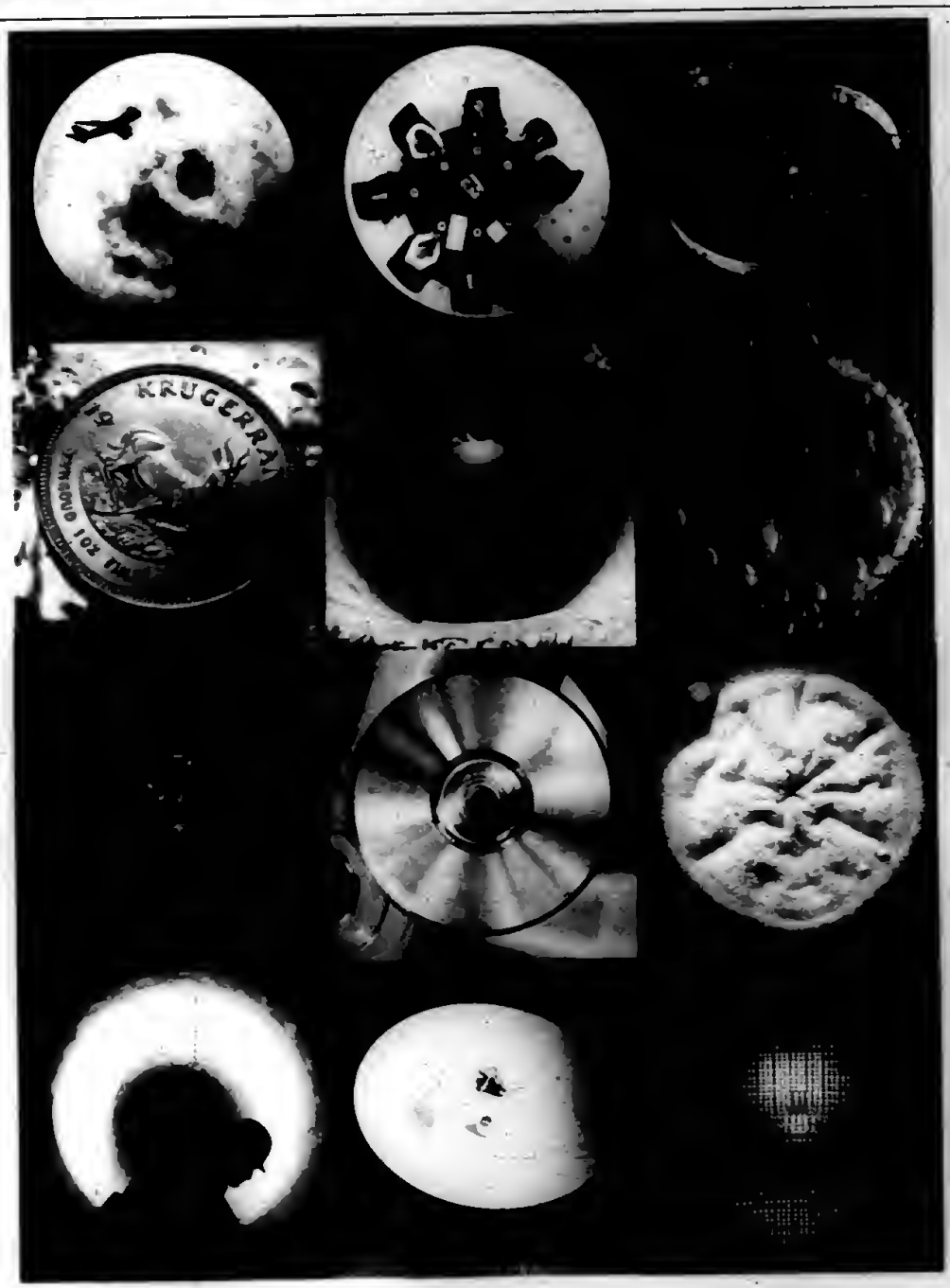
"That is the main thing — to cut connection time charges," Wittmer said. "And I also like the setup configurations. You want the network connections to be as seamless as possible to the user."

Michael Howard, an analyst at Infonetics Research, Inc. in San Jose, Calif., agreed.

"Mobile users are spending up to six hours monthly fussing with remote access. By making the client software easier to install and reducing connection costs, Shiva is going a long way in addressing cost [issues] and frustrations for companies with remote access," he said.

The LanRover/2EPlus 4.0 with four BRI modules costs $7,119. With two BRIs, the cost is $2,459. The price of the ShivOS software upgrade ranges from $275 to $499. The products are available immediately.

Companies with similar products include Ascend Communications, Inc., Cisco Systems, Inc. and Bay Networks, Inc.



Briefs

Go without the flow

Oracle Corp.'s InterOffice, a suite of groupware modules optimized for use with the Oracle7 database, will ship without its workflow component. InterOffice, which will add document management and conferencing to Oracle's Office product suite, will offer workflow functionality by the end of the year, company officials said.

Attachmate links TCP/IP to SNA

Attachmate Corp. in Seattle jumped in the TCP/IP-to-SNA server market with a Windows NT-based product that supports up to 2,000 active users. The Emissary TCP Server software is available now. Pricing starts at $11,500 for a 250-user license.

New Products

Latitude Communications, Inc. has introduced MeetingPlace conference server 2.0.

According to the Santa Clara, Calif., company, MeetingPlace conference server is an audioconferencing system that leverages a user's internal voice and data network to streamline the process of holding audioconferences. The product can remind all meeting attendees about meeting times by fax or electronic mail. With telephony technology, users can request meeting slides and handouts.

The product also lets users add comments to be played during the meeting and includes breakout session and hallway chatter features. It has security features to lock out and screen meeting attendees.

Pricing for MeetingPlace conference server starts at $39,995 for an eight-port entry-level system.

▶ *Latitude Communications*
(408) 988-7200

Luminous Corp. has announced Adobe Virtual Network 1.0 for Macintosh.

According to the Seattle company, the product is a remote control delivery tool that lets dispersed graphic arts print production providers and clients electronically exchange documents over telephone, Integrated Services Digital Network lines, Apple Computer, Inc.'s AppleTalk networks and the Internet. It consists of a host module at the service provider site and client modules at the customer sites to link client sites to a provider's prepress production system and enter jobs directly into the host's production workflow.

Adobe Virtual Network 1.0 lets the client module transfer files to the host through a wide-area network or serial connection, send and receive files, collect job ticket data and collect job files from the network.

Pricing for Adobe Virtual Network 1.0 for Macintosh starts at $1,695 for up to 10 customized client sites.

▶ *Luminous*
(206) 689-6700

Isotro Network Management, Inc. has introduced NetID 2.0, a tool for managing domain names and Internet Protocol addresses in enterprise networks.

According to the Ottawa company, NetID-2.0 uses subnetwork modeling to allow administrators to map addressing and conventions, do custom importing and populate NetID with data from virtually any source. The product also features templates to reduce data entry for similar devices and ensure consistent data.

NetID 2.0 is available in enterprise and single-user versions. The enterprise edition lets multiple users access a common database using access software provided by a database vendor. Pricing starts at $9,500 and includes a three-user license. The single-user version has an integrated database and starts at $1,495.

▶ *Isotro Network Management*
(613) 722-1921

Denmac Systems, Inc. has introduced AlertPage Enterprise, an advanced monitoring and alarm notification product for Novell, Inc. NetWare and Microsoft Corp. Windows NT mixed server environments.

According to the Northbrook, Ill., company, AlertPage Enterprise provides constant, unattended surveillance of NetWare and NT servers. It has a monitor that measures uptime, downtime and service availability of all devices. AlertPage can report NetWare Directory Services error messages and can forward event log messages from NT servers. It also has an intelligent filter that teaches the product the normal alarm behavior of the network and provides immediate notification of critical problems.

Pricing for the product starts at $995.

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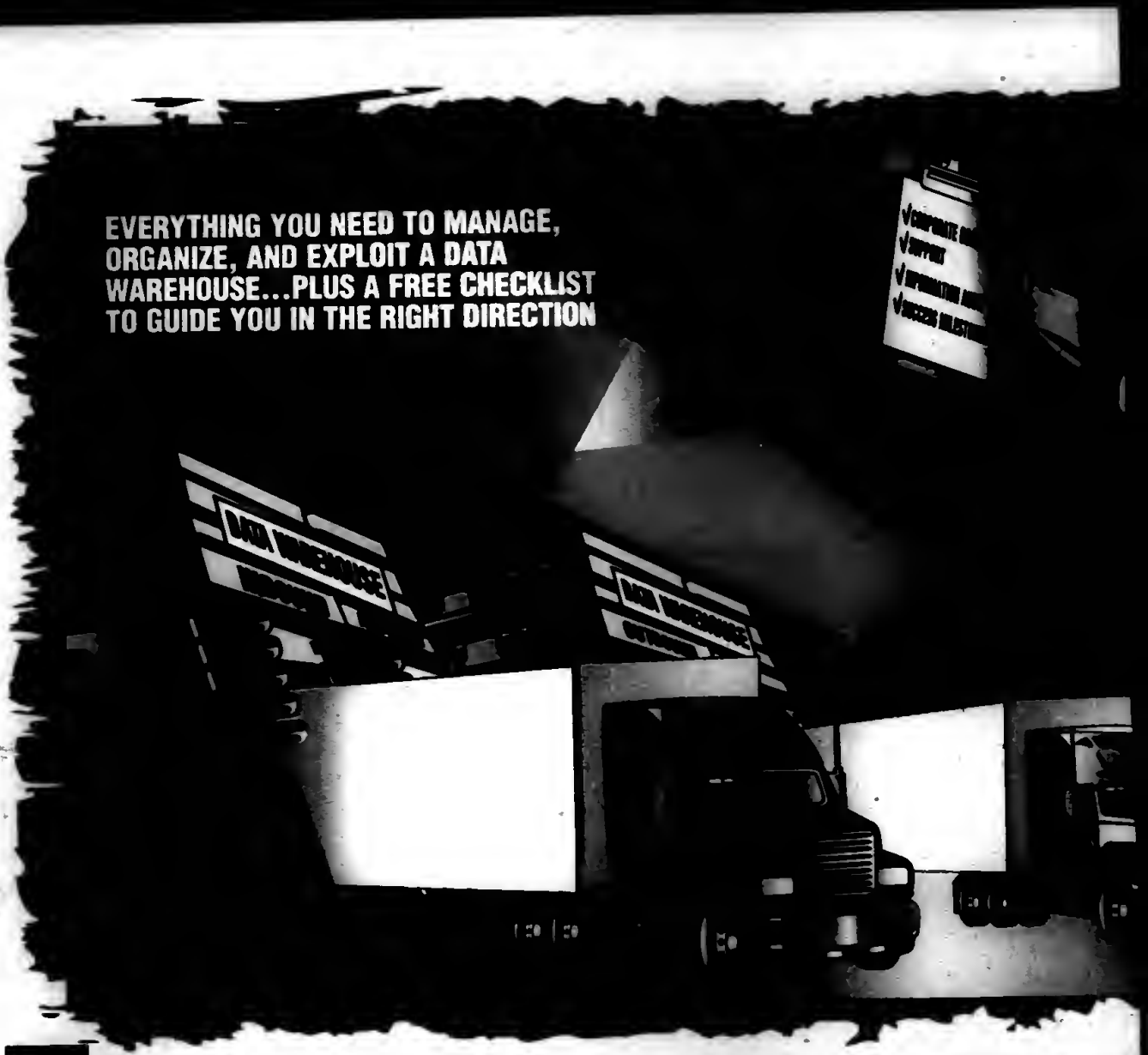
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The Internet

Reporter's Notebook: In the field at Netscape's first user show, 64

Users go on bandwidth patrol

WebTrack tool helps eliminate need to upgrade 'net links, disk space

By Patrick Dryden

Cruising the World Wide Web is cool, unless you're a network manager.

As Internet involvement grows, managers must track usage and cope with users' hunger for bandwidth and server space to hoard the goodies they fetch from unregulated realms.

Instead of automatically spending money to boost the number or speed of Internet links and add a few more gigabytes of disk space, some managers demand justification for such enhancements. They confront Web mania by detecting and limiting frivolous activity.

They set limits for good reason: At least 20% of employee activity on the Web involves undesirable or irrelevant sites, according to three large organizations, which asked to remain anonymous because they were embarrassed to find Web abuse in their firms.

Administrators at these companies are evaluating WebTrack, monitoring and filtering software from Webster Network Strategies in Naples, Fla. WebTrack installs on a proxy server behind the network's firewall. It logs all inquiries and can refuse requests for sites deemed inappropriate according to the organization's Internet usage policy.

Marathon Oil Co. adopted WebTrack to help ensure compliance with its Internet usage policy. About 600 of the company's 7,500 end users have Web authorization. Marathon combined the WebTrack filter with another application that regulates user access to the Houston company's Internet gateway.

Policy enforcer

"We were wide open before we took these steps, but now we've enforced our internal-to-external policy," said Willie Waters, Marathon's information technology services consultant responsible for Internet planning.

Administrators at Marathon use WebTrack to check where users venture on the Web, Waters said. He said he would like to see user information presented better in the on-line viewer to help run quick checks instead of full reports.

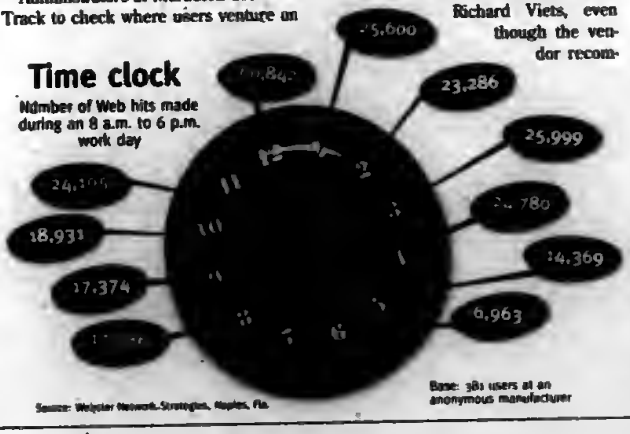
WebTrack successfully blocked attempts to reach restricted sites, even when users attempted to follow links from a legitimate site, Waters said. But in the cat-and-mouse game of security, no tool is foolproof. Waters had to request a fix to plug a gap that users found in WebTrack's defenses.

Marathon warned users it would screen usage. But some evaluators apply the tool surreptitiously, according to WebTrack product manager Richard Viets, even though the vendor recommends alerting users before surveillance begins. The tool can determine who did the most Web browsing and the most-visited uniform resource locators (URL).

One utility company used WebTrack to block access to URLs on the control list, which Webster Network Strategies updates weekly. When the utility found that 20% of its bandwidth was being wasted, it put off upgrading its T1 connection to the Internet. A Fortune 500 high-technology manufacturer applied WebTrack to recover disk space. According to one administrator, users filled nearly 6G bytes of server storage with Internet files unrelated to their work.

Time clock

Number of Web hits made during an 8 a.m. to 6 p.m. work day



Source: Webster Network Strategies, Naples, Fla.

Base: 381 users at an anonymous manufacturer

Wasting away again in Webville

The following shows the hits made in one day to non-work-related Web sites

Uncategorized personal pages	16,899
Sex	16,473
On-line sales	10,333
Sports	6,657
Entertainment	4,582
Dotted decimal domains (e.g., 198.68.36.46/adultsrus)	2,245
Job search	1,583
Gross or indecent	1,291
Personal pages	1,062
Fluff sites	466
Gambling	322
Nonmainstream publications	315
Drugs	222
Lifestyle	213
Games	104
Humor	48
Criminal skills	1

Base: 381 users at an anonymous manufacturer

Source: Webster Network Strategies, Naples, Fla.

VRML promises 3-D magic for the Internet

Mitch Wagner

Maybe you don't hear about it much because the name is so awkward: "VRML." How do you pronounce that? "Virmul?" It sounds like the name of a villain in a *Mighty Morphin Power Rangers* episode.

But VRML, or Virtual Reality Modeling Language, is the Internet's hottest new technology for business.

VRML is a language used to describe three-dimensional objects. Images built using VRML can be turned around and examined from all sides, and users can "virtually" move closer to them or farther away.

For business, it's a way to create more compelling World Wide Web sites.

Using VRML, businesses can build a mock-up of a building and allow users to examine it from all angles and move from room to room. They can also build models of anything using VRML — a car, furniture or complex equipment. One person on the Internet even built a model of a zebra's head (http://www.tcp.ca/gsb/VRML/models/Zebra5.wrl).

Serious fun

Fiddling with VRML is lots of fun. But VRML is serious business, too. Representing information in three dimensions makes it easy to understand. Users can view insurance information, for example, with conventional Internet technology, but they might find it easier to move through a simulation of a building and stop at offices marked "health benefits" and "life insurance."

Using VRML, an engineer can download designs for a complicated jet engine part, or a car mechanic can download instructions and 3-D diagrams for a new procedure.

There are also customer service opportunities: Remember how hard it was the last time you tried to assemble, say, a futon with the instructions that came in the package? Easy-to-use 3-D diagrams could help make that furniture much easier to assemble, and companies that incorporate those diagrams may sell more futons.

People will stick around longer for an enjoyable and easy-to-use presentation than they will for a stodgy one, and VRML is eminently enjoyable. More than that: It's magical. And magic is what the Internet is all about.

VRML also has a business model for success behind it. The technology doesn't require much in the way of computing resources to run. A VRML document can fit in less than 1M byte of space, which means it can be gracefully transported over the Internet. True, VRML runs a little slowly on today's desktop systems, but that won't be so in a year. And the software is cheap or free from vendors such as Netscape.

Silicon Graphics, Apple, Microsoft and dozens of other companies also support the basic VRML standard. The SGI/Netscape/Apple group is working on a set of extensions to VRML that is different from Microsoft's, but this seems like a standards disagreement that will sort itself out because of the group's support for the basic platform. In the meantime, with that kind of vendor support behind it, VRML is jet-propelled for success.

To learn more about VRML, visit the VRML Repository at http://sdsc.edu/vrml/.

Wagner is *Computerworld*'s senior editor, Internet technologies. He can be reached at mitch_wagner@cw.com.

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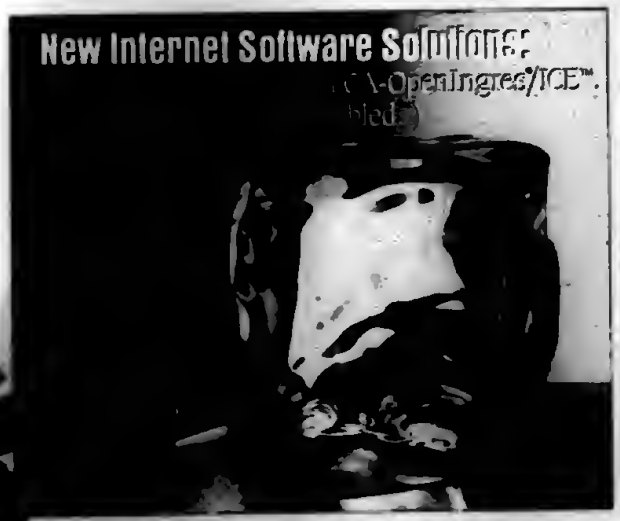

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Microsoft provides rapid 'net deployment ability

By Chris DeVoney

Microsoft Corp.'s Internet Information Server (IIS) delivers the tools to rapidly deploy an effective Internet or intranet site. But it offers little in the area of commerce-oriented transactions for the likes of retail or banking applications, primarily because of the security system it uses.

An add-on to Windows NT Advanced Server, IIS transforms the server into a World Wide Web site, a file transfer protocol and a gopher site to search and retrieve files from other participating servers.

Review

The Web server grabs the lion's share of attention in the initial release. IIS rapidly dispenses text and graphics-intensive Web pages that use the popular Hypertext Markup Language and keeps the data flowing at a pace well above its competitors. Forms or pages that trigger responses can be written using either the industry-standard Common Gateway Interface or Perl applications language.

IIS sports the Internet Server Application Program Interface (API), a Win32 API for add-ons such as the Internet Database Connection. The connection allows Web designers to access any Open Database Connectivity-compliant database, including engines such as Microsoft's SQL Server. Connected Web pages can draw and store records from the database and use SQL stored procedures or triggers.

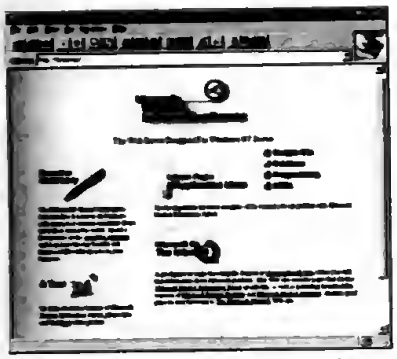
Providing a Web connection to the corporate database gives IIS appeal as an in-house information vehicle. An intranet Web site can distribute prepared or ad -hoc reports to its users over the corporate LAN with minimal information systems attention.

Standard site security is handled through NT Advanced Server's usual file access controls, which extend to all systems users. IIS can restrict which directory trees are available and can allow or deny site access to individual users and entire sites based on their TCP/IP addresses. For struggling networks, the total bandwidth available to the site can be constrained.

For comprehensive security over communication lines, IIS employs Secure Sockets Layer (SSL) services, a public/private encryption system that uses third-party certificates. With these services, a single server can operate only with authenticated users, or it can provide separate Web directories for public and secured users.

But SSL falls short for commerce applications. IIS doesn't handle the new Visa/MasterCard Secure Electronic Transaction (SET) standard, which is better suited to applying the bulk of the encryption effort directly to sensitive information, such as a credit-card number, than fields such as a user's name.

An intranet site can be more highly stressed than an Internet site because of the higher bandwidth demands of LANs. Typically, LANs used for intranets require from 10M bit/sec. to 100M bit/sec. of bandwidth. This is massive compared with an Internet server, which is limited by the phone line that is dialing in to it — typically 4.5M bit/sec.



Microsoft's Internet Information Server *transforms an NT Advanced Server into a Web site, a file transfer protocol and a gopher site*

But IIS comes through fine here as well. On a 120-MHz Pentium system, we simulated a heavy departmental load of more than 50 connections per second and throughputs of 10M bit/sec. Ethernet; IIS showed no signs of fatigue.

IIS received its baptism by fire as microsoft.com, the Microsoft Web site that ran until last December on a dual 90-MHz Pentium server with 64M bytes of memory and a 4G-byte disk array. In that period, the site recorded peaks of more than 50,000 hits a day.

IIS's performance is matched by its ease of setup and maintenance. The software installed with no difficulty in less than 15 minutes, far less time than most Unix-based servers.

Most configuration decisions are made easily, and maintenance chores depend heavily on already familiar applets, such as NT's User Manager. Unfortunately, the toughest Web job — updating and maintaining the server's content — is beyond IIS's capability.

IIS requires Service Pack 3 for NT Advanced Server 3.51. It is available for download at no charge or on CD-ROM — which includes the service pack — for $99. IIS will be bundled into Windows NT 4.0, expected by June.

Compared with other server products, IIS is the easiest site package to maintain. The server's performance is exceptional.

For on-line retail purchasing or banking applications or high-security areas where firewalls are needed, better servers are available.

For other uses, IIS provides the compelling framework for Internet or intranet deployments.

DeVoney is a computer columnist in Seattle and author/editor of more than 20 books on personal computing.

Microsoft's Internet Information Server

A powerful tool for quick Internet/intranet site deployment in everything except commerce-oriented transactions

Installation:	A
Features:	B+
Performance:	A-
Compatibility:	B
Value:	A

Reporter's Notebook

The Internet may be chaos, but the first day of **Netscape Communications Corp.**'s user show last week was more orderly than Bob Dole's sock drawer.

Demonstrations of new products came off without hitches, and barbs at rival **Microsoft Corp.** got appreciative laughs.

Netscape user show

Among the new Netscape-able wares are the following:

- **Mountain View, Calif.-based VeriSign, Inc.** announced a special deal for Netscape users who want to buy its Digital ID user authentication products. Users can get five Digital IDs, regularly $670, for $495.
- **Dimension X, Inc.** in San Francisco shipped The Easy Animator, a drag-and-drop tool for creating two-dimensional Java animation programs. The product is priced at $495; a version with fewer image and sound capabilities is priced at $250.
- **A full-text search engine from Verity, Inc.** in Mountain View, Calif., will be embedded in the final version of Netscape's new Enterprise Server for hosting World Wide Web applications. Also in Enterprise Server will be a version control facility from **Mortice Kern Systems, Inc.** in Waterloo, Ontario. The utility lets users check documents in and out of the Netscape server to avoid overwriting one another's work in a groupware application.

* * *

In a press conference, Netscape President and CEO Jim Barksdale had a lot to say about a variety of topics, including these:

- On the notion that browsers are becoming too complicated: "You see, you point, you click. That's not hard."
- On whether Netscape's browser used on a low-cost Internet device could steal market share from **Intel Corp.**-based PCs that run Windows: "Not really. That's not our goal. This [Internet] market is enormous. It isn't necessary for any one person to go beat the stew out of anyone else to make money here."
- On the reported fears of Oracle CEO Larry Ellison that Netscape wants to be the next Microsoft: "There's a tendency in this industry [to think] that you have to put somebody else down to move up. We have all the Microsofts we need."

Of course, Microsoft will no doubt return jibes at its Internet developers conference this week in the same San Francisco convention center. Stay tuned.

— Kim S. Nash

Briefs

Improving mail service

A group of Internet electronic-mail vendors joined together last week to help speed up the acceptance of standards for Internet messaging. One of the **Internet Mail Consortium's** (http://www.imc.org/) priorities, according to Clyde Johnston, president of member company Innosoft International, Inc., is to rapidly deploy the Internet Mail Access Protocol standard for remote access to Internet E-mail.

Virtual chaperone for Web users

Version 3.0 of **Microsoft Corp.**'s Internet Explorer Web browser will contain a feature that lets concerned managers and parents disable end-user access to violent, sexual or other Internet locales deemed objectionable. Internet Explorer 3.0 is due to start beta testing this spring. Separately, **American Express Co.** said it will support Microsoft's version of the Secure Electronic Transaction, or SET, protocol for credit-card payments over the Internet.

AT&T enters 'net wars

AT&T Corp. jumped into the pricing wars for dial-up Internet connectivity. The company plans to offer unlimited Internet access to its telephone customers for $19.95 per month. Last month, **CompuServe, Inc.** announced its own plan for $19.95-per-month, all-you-can-eat Interbet access. **Prodigy, Inc.** has said it plans to offer a trial Internet service in the New York metropolitan area; it will feature dial-up Internet access for $1 per month with no minimum.

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Vendors want 'net to be true to type

By Lisa Picarille

When a company erects a billboard or mails an advertising flyer, it's easy to ensure that the material is formatted, displayed and viewed exactly as the company intended.

But on the Internet, material may not appear on a user's screen in its intended layout and format because the user's PC may not have the same fonts that were used to create the document.

This is a problem for companies and individuals that use the World Wide Web to distribute format-intensive material, such as insurance forms, expense and annual reports, company logos and trademarks.

"If you are *The New York Times* or *The Wall Street Journal*, you have a font identity," said Chris Le Tocq, an analyst at Dataquest, Inc., a market research firm in San Jose, Calif.

Several type vendors and software developers are jockeying to gain a stronghold in an emerging market: ensuring that documents on the Web are displayed exactly as the creator intended.

Typographic team

Adobe Systems, Inc., Apple Computer, Inc. and Netscape Communications Corp. last month teamed up to define and deliver typographic extensions to Hypertext Markup Language, the de facto standard for creating Web documents.

The companies want to provide an open, cross-platform technology that supports typographic standards, such as Type 1 fonts and PostScript documents. This new, unnamed Web font technology will be supported in Amber, the next version of Adobe's Acrobat electronic document exchange program. Amber is due this summer.

Netscape will make the Web font technology available as a plug-in extension to its Navigator browsing software.

Microsoft Corp. also announced last month that it plans a Web extension for its TrueType font technology. The extension will let designers create Web pages that users can view in their original format, even if they don't have the typefaces on their PCs.

Microsoft plans to offer a core set of free fonts to developers who support TrueType. TrueType fonts are already incorporated in Microsoft's Windows 3.1, Windows NT and Windows 95 and Apple's Mac OS.

Microsoft also plans to include software that embeds fonts in documents and then downloads the typefaces to users' PCs as needed. Microsoft also will offer a royalty-free, cross-platform license for its forthcoming TrueType rasterizing engine. This will allow platforms that don't support TrueType technology, such as Unix, to view TrueType fonts.

"This is a great development, and I think this is important as an option because it enables content providers to ensure documents are viewed in the same format they were created," said Dave Roller, manager of strategic planning and new technology development at AT&T Corp. in Indianapolis.

But one user said he doesn't feel constrained by the font technology already available.

"It's already so difficult to reach consumers because of restrictions in communications. It's hard to imagine that all these companies are spending such an enormous amount of time trying to fix this font problem," said Peter House, webmaster at the Smithsonian Institution.

Mirroring fonts

The following proposed HTML extensions would allow users to view a document in its original format, including fonts and layout

Vendor	Features
Adobe, Apple and Netscape (Type 1 and PostScript)	Anti-alias font technology to remove the jagged edges of all type sizes for higher screen quality
	Embedded, compressed fonts for faster performance over a 14.4K bit/sec. modem
	Progressively rendered fonts, which enable the screen to display text immediately
	Font subsetting that improves performance because only necessary characters are automatically downloaded
Microsoft (TrueType)	Embedded TrueType fonts to allow only the necessary fonts to be automatically downloaded; anti-alias font technology
	TrueType rasterizing engine for platforms such as Unix that don't currently support TrueType

New Products

O2 Technology has unveiled O2Web, a software component for World Wide Web developers.

According to the Palo Alto, Calif., company, O2Web is an add-on component for O2 Technology's O2 Database System. It lets developers connect any O2 database to the Web and provides a tool set to develop and deploy a Web server based on O2.

The product was designed to turn an O2 Database System into a Web server by establishing a Web connection and translating all objects into Hypertext Markup Language format.

O2Web supports Sun Microsystems, Inc.'s SunOS and Solaris, Hewlett-Packard Co.'s HP-UX, Silicon Graphics, Inc.'s Irix, IBM's AIX and Digital Equipment Corp.'s OSF/1.

Pricing starts at $1,500.

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Dvorak Development & Publishing Corp. has unveiled Oui 1.3, a Windows-based off-line navigator for Internet newsgroups.

According to the Louisville, Colo., company, Oui 1.3 lets users set up tasks off-line, connect directly to gather desired information and then disconnect. Users can organize information by keywords, phrases, addresses and user names.

The navigator supports multiple mail attachments and is Multipurpose Internet Mail Extension-compatible.

Oui 1.3 has a built-in spell checker, a newsgroups index list and message fonting capabilities. It also can encode and decode files.

Oui 1.3 requires 4M bytes of RAM, 11M bytes of hard disk space and Windows 3.1 or later.

Pricing for Oui 1.3 starts at $39. A free, 30-day demo version is available through Dvorak's home page at http://www.dvorak.com.

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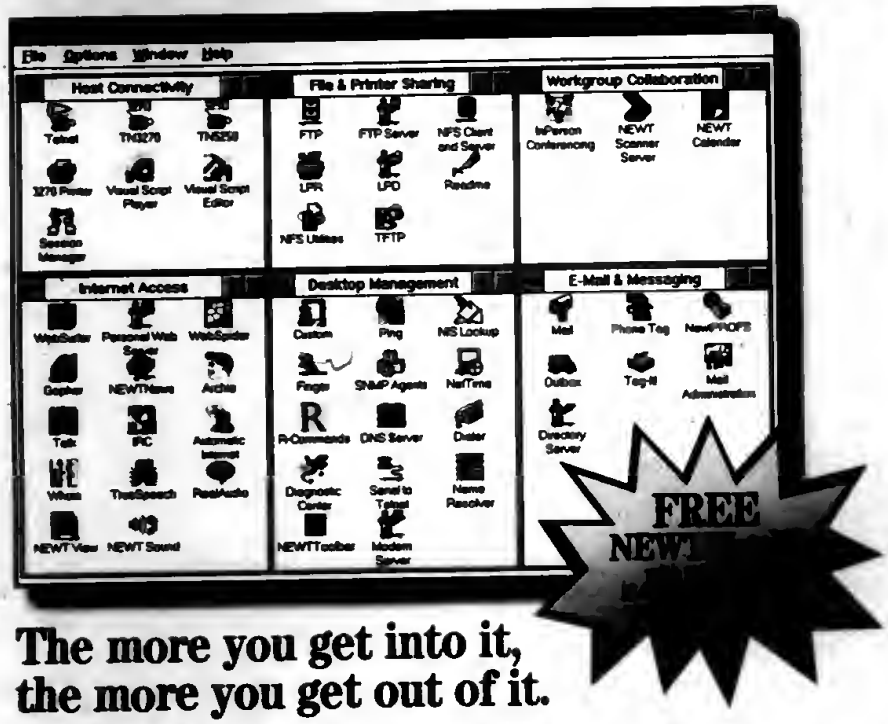

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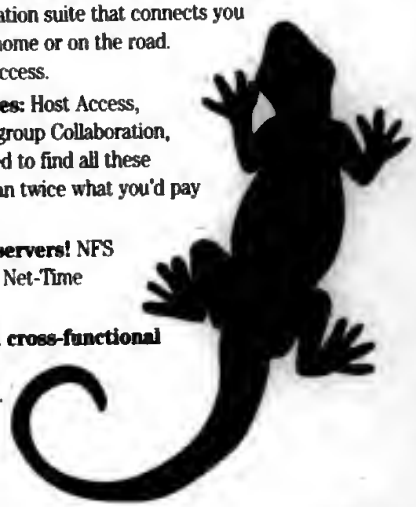

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Calendaring and scheduling application to ride Web wave

By Tim Ouellette

Let your Daytimers gather dust.

Vendors of calendaring and scheduling software, like many other segments of the software market, seek to leverage the Internet and cheap World Wide Web browsers to simplify on-line scheduling for users.

OnTime Web Server *makes browsers universal OnTime clients*

Campbell Services, Inc. in Southfield, Mich., is beta-testing two versions of its OnTime calendaring and scheduling software. One version will allow access to schedules from Web browsers. The other will provide access to other companies' OnTime servers that are connected to the Internet. The products are expected to ship by midyear.

"We are hoping to eventually use it to open up calendaring across the Internet with other organizations and departments in other universities," said Ed Vasquez, a systems administrator at the University of Michigan in Ann Arbor.

Users wouldn't have to play telephone tag, compare schedules and rework travel plans because the information would be immediately available on-line.

Vasquez plans a pilot test of Campbell's OnTime Web Server and server-to-server software.

The OnTime Web Server will let remote users view their OnTime schedules with Web browsers. The server acts as a client to a Novell, Inc. NetWare or Banyan Systems, Inc. Vines LAN. It communicates with the OnTime software that runs on a separate LAN server.

Campbell's server-to-server software will let organizations that use OnTime schedule meetings with one another over the Internet. The software can be combined with the OnTime Web Server, and users don't even need regular OnTime client software; instead, they can use their Web browsers to schedule meetings.

For instance, an OnTime user at a legal firm could set up a meeting with an OnTime user at a client company, and neither firm would have to build any extra network infrastructure.

Novell plans for midyear GroupWise Web Access, which will let users access their GroupWise calendars and messages via a Web browser. But smaller vendors such as Campbell have a better opportunity to take advantage of user interest in Internet scheduling than larger groupware vendors, which must focus on improving more than just their calendaring and scheduling features, said Bill Nicklin, an analyst at Gartner Group, Inc. in Stamford, Conn.

OnTime is already used in large group installations. Vasquez said about 1,000 users at the University of Michigan schedule everything from vehicles to visual equipment with OnTime over a Vines network. "The only things we don't schedule with OnTime are the bathrooms," he said.

'net used to preview Canadian trade show

By Michael Goldberg

If organizers of the Canadian National Internet Show have their way, conference attendees will get an electronic head start on the show — and then never leave.

Cyberplex Interactive Media, Inc. in Toronto, a World Wide Web consultancy and host for the show's home page, has set up interactive discussion groups on the Web that track main topics of the conference. They include security and on-line marketing. The conference will be March 28-31 in Toronto.

Jan Loomis, managing editor of "The Internet Marketing and Technology Report" in Carlsbad, Calif., said this is the first time she has heard of a 'net-centric conference going to the Web to engage attendees. She said it is a practical application of interesting technology. "They can 'focus group' the entire conference base that way," she said.

Instant access

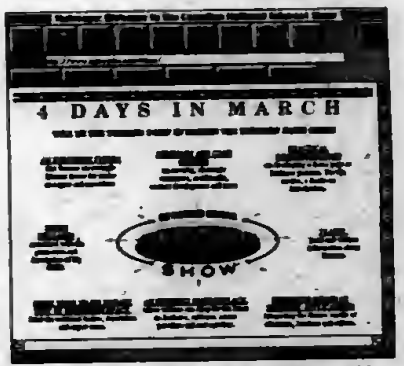
Show organizers are using Digital Equipment Corp.'s Web server software, Workgroup Web Forum.

Potential attendees can tap in to discuss ideas for the show, questions keynote speakers should address and concerns about commerce on the Internet. Show organizers also plan to use the software to poll attendees about points raised at the conference.

"We'll get some feedback on what perspectives attendees intend to [bring] to the show, what their issues are," said conference Chairman Walid Mougayar, president of CyberManagement, Inc., an electronic commerce consulting firm in Toronto.

Organizers intend to hold the show annually and maintain a Web site for continued forums, said Dean Hopkins, the Web site builder and a principal at Cyberplex.

"You start to build up some kind of knowledge base that will stay after the show. It's a basis for continuing knowledge and discussion," Mougayar said.



Organizers would keep *the Canadian National Internet Show running indefinitely on the 'net*

Conference callers can share documents

By Mitch Wagner

Until now, if you wanted to have charts, graphs or other documents as visual aids during conference calls, you had to fax or mail them in advance.

But Future Labs, Inc. in Los Altos, Calif., this week plans to introduce a service that will let users share documents in real time over the Internet.

The Internet TalkShow service lets users download free client software that they can add to their World Wide Web browsers as helper applications.

Simultaneous access

When the parties in a conference call point their Web browsers at the uniform resource locator for the TalkShow server, they can see the same document on their screens. Users can share and update documents created by any Windows applications.

Bell Communications Research, Inc. (Bellcore) is considering using Internet TalkShow to help with telecommunications technology training. An instructor could teach a class over the telephone; the visual aids would be documents written in Microsoft Corp.'s PowerPoint and Word.

"I'd be able to do teaching in real time to an audience that's scattered all over the place," said Kent Faust, an instruction manager at Bellcore in Lisle, Ill.

Beta versions have been very slow, but this might be because of Bellcore's firewall or memory allocation problems on the PC rather than the software, Faust said.

The Internet TalkShow service will be free until September, after which subscriptions will cost $49 per year. Internet TalkShow server software will be available for licensing in the second quarter. The software will cost about $2,500 for use on corporate intranets. The server runs on Windows NT and common Unix platforms.

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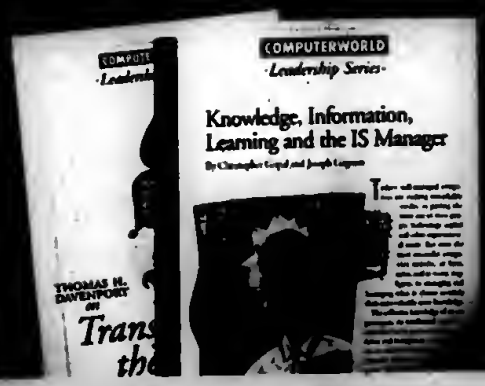

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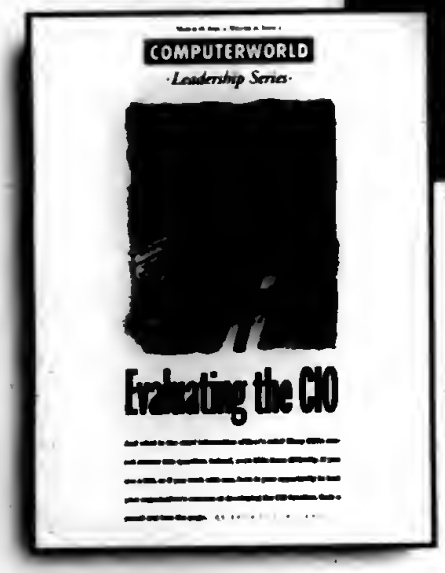

In this issue of Computerworld: Evaluating the CIO

Just what is the role of the chief information officer in today's organization? And how does an organization measure the value contributed by the CIO? Many CEOs can't answer either question, and even CIOs have difficulty. In this month's Leadership Series article, author Thomas J. Buckholtz offers CIOs an opportunity to evaluate their performance. The "leadership test" provides a model for defining the CIO's role and offers insight into where improvements can be made. Sharpen your pencil and get ready to be tested.

To request a copy of previous Leadership Series articles

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Corporate Strategies

Utility charges to 2000

By Craig Stedman

One of Debi Schaibley's goals in managing the year 2000 project at Tampa Electric Co. is that her work go completely unnoticed by end users.

But she said executives definitely took notice when she first told them what they might have to shell out to keep the Tampa, Fla., utility's mainframe applications humming beyond 1999. "They all went apoplectic," Schaibley said.

Initial talks with more than 20 vendors and consultants indicated it would cost about $1 per line to fix Tampa Electric's 4.5 million lines of mainframe code to handle the arrival of 2000, which otherwise would appear as the year 1900. Schaibley's bosses asked her to find a way to lower the price tag.

Eventually, she turned to a Tampa-area consultant who had written C++-based PC software that automatically tracks and changes date fields in mainframe programs. Schaibley and the consultant then limited the scope of the process by deciding not to touch historical data and to forego testing finished conversion work on applications such as internal reports.

Schaibley wouldn't specify what the project's cost is pegged at. But by avoiding labor-intensive manual conversion work, Tampa Electric should be able to do the job for "substantially less" than her original estimate, she said.

Tampa Electric hopes automated conversions will minimize its year 2000 testing requirements

The utility, which began a six-month pilot phase in January, now has four employees and contractors working on the year 2000 project. It expects to need no more than seven employees when the 22-month conversion process gets under way in June, Schaibley said.

Tried-and-true mainframe programs typically use two-digit annual dates, a vestige of the days when big iron disk storage was so expensive that saving two bytes in every date field was financially prudent. But as 2000 enters the equation, such programs may mistakenly identify "00" as 1900.

The problem already has touched Tampa Electric; its mainframe viewed an equipment purchase contract that extends into 2000 as closed. Its three-year materials forecasting application is expected to crash next January if the code isn't fixed by then, Schaibley said.

Besides holding down costs, the utility hopes the automated conversion will limit the time that individual programs will have to be closed off from ongoing development to 10 days or less. That's important because of upcoming deregulation that will do away with local utility monopolies and allow customers to buy electricity from multiple sources.

Can't afford downtime

"We can't take a set of code off regular maintenance for a month or more" just to modify the date fields, Schaibley said. "We need to be proactive to customer needs, and fixing something that's already working doesn't fit in that category."

Jon Bebeau, the consultant based in Lutz, Fla., who is working with Schaibley, said more than half the conversion process will be spent analyzing the utility's 6,000 mainframe programs. Similar programs will be grouped together and converted simultaneously by using tailored rules written in the conversion tools, he said.

The utility wants to wrap up the conversion work by 1998 to avoid any nail-biting deadline pressure. "We want all of 1999 to undo any problems or errors that we introduce," Schaibley said. "With legacy systems, you usually just change a piece at a time. This just about unravels the whole thing."

Rep. Ehlers shapes new 'CyberCongress'

By Gary H. Anthes

U.S. Rep. Vernon J. Ehlers (R-Mich.) calls it the "CyberCongress computer plan." Ehlers, who holds a doctorate in nuclear physics, has worked with computers for almost four decades. Now, the 62-year-old lawmaker has taken on his largest project yet: overhauling the antiquated systems and networking the offices of his 434 colleagues in the House of Representatives. Ehlers recently told Computerworld *about his plans for a CyberCongress.*

Rep. Ehlers was asked to 'computerize' the House of Representatives

CW: When did you first get interested in computers?

Ehlers: At the University of California [in the late 1950s], I used an IBM 650 computer with vacuum tubes and a magnetic drum mem-

CyberCongress, *page 73*

Aetna mulls IS outsourcing

Bids sought for possible $5 billion deal

By Thomas Hoffman

Aetna Life and Casualty Co. is in the early stages of soliciting bids for an outsourcing deal that industry watchers have placed at up to $5 billion over 10 years.

"Our company is changing, and we need to position ourselves through cost variables to respond to those changes," said James Kane, a director at Aetna's information technology organization.

Aetna's interest in outsourcing is centered around the following three key business objectives:

- Improving its information systems service delivery while significantly reducing operating expenses.
- Improving end-user access to technical resources.
- Providing the best environment for its IS professionals.

"There are a lot of things we could do to be more efficient than we are today," said Max Gould, chief technology officer at Aetna.

Aetna "is focused as much as possible on improving profitability," said Weston M. Hicks, an insurance analyst at Sanford C. Bernstein & Co. in New York. Although Aetna is "making a lot of progress, they're not where they want to be," Hicks added.

Aetna is only at the preliminary stages of exploring outsourcing partnerships with service firms such as Electronic Data Systems Corp., IBM's Integrated Systems Solutions Corp. and General Electric Co.'s GE Capital Technology Services unit.

Aetna expects to finalize the scope of any potential outsourcing deals later this month. Multiple vendors may be selected, depending on the recommendations the candidates offer and how their core competencies match with those suggestions. Aetna also may decide to keep its operations in-house with its 4,000 IS staffers, Kane said.

Aetna will likely make a decision on its IS plans by year's end, Kane said.

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CyberCongress

CONTINUED FROM PAGE 71

ory. I programmed in symbolic assembler language. That was a great education in how computers work, and I've been using them ever since.

CW: What did you do while you were a Michigan state senator?
Ehlers: I was asked to modernize the computer system there. I was the unpaid project manager. We went to a totally LAN-based system — no mainframe. That caused great consternation to our computer center director, but I said, "This will work, and it's less expensive." At the time, 1987, it was one of the largest systems of the type. That's what was so significant because government people don't normally take risks, but I took the risk, and it paid off.

CW: What are you up to now?
Ehlers: Shortly after I got here [January 1994], Newt Gingrich tapped me to computerize the entire House. The plan is out there, and we are implementing it. The software architecture will be Microsoft Exchange. The hardware will be client/server-oriented, and we are trying to persuade my colleagues to buy new computers for their offices.

CW: What are the risks or challenges you face in this effort?
Ehlers: Exchange is a brand-new product. It's not even on the market yet. And there are tremendous political challenges. There are people who know something, or they have a relative in the business, or they have hooked up five computers in their office and they say they understand it. What they don't understand is the complexity of hooking up 12,000 computers, which is what we have. There are lots of pitfalls.

CW: What will be the main benefits of the new system?
Ehlers: You'll be able to access all House documents, bring them up on your screen, do word searches and so forth. Also, with the messaging system, you can have five different people working on a draft simultaneously. If you get everyone on-line at the same time, people can write their comments and everyone can see them and say, "Yes, good idea," or "No, I don't like that." That will save a lot of time.

CW: Will it save taxpayers any money?
Ehlers: In all my work with computers, I have never sold computers on the basis that they'll save money.

CW: How techno-savvy is the typical House member?
Ehlers: All over the map. Few have much technical knowledge, but every election you get more computer-literate people in.

From typewriters to frame relay

House members fall into two broad categories: Those who have been in office for 20 years or more and use PCs to manage constituent correspondence and typewriters for everything else; and those who have been recently elected and use PCs and LANs the way a business does.

The House is served by a huge LAN populated with old Unix-based boxes that serve dumb clients and a mix of more modern servers and PCs. Interoffice communication is hampered by the use of nine different electronic-mail packages. "If I want to send E-mail to the office next door, it's actually easier to send it over the Internet than over the House computer system," said U.S. Rep. Vernon J. Ehlers.

Under the CyberCongress plan, a frame relay-based intranet will let House members and their staffs work as easily in their district offices as in Washington. It will stitch together different hardware and software by using World Wide Web browsers and Microsoft Exchange as a messaging backbone, said Reynold Schweickhardt, a staff member who is on the Committee on House Oversight. — *Gary H. Anthes*

Brief

Group certifies developers

A new professional organization has begun certifying software developers. The American Association for Software Developers provides peer review, credentials, marketing assistance, information on continuing education and a directory of members to businesses requiring custom software. Contact jimscham@indirect.com for details.

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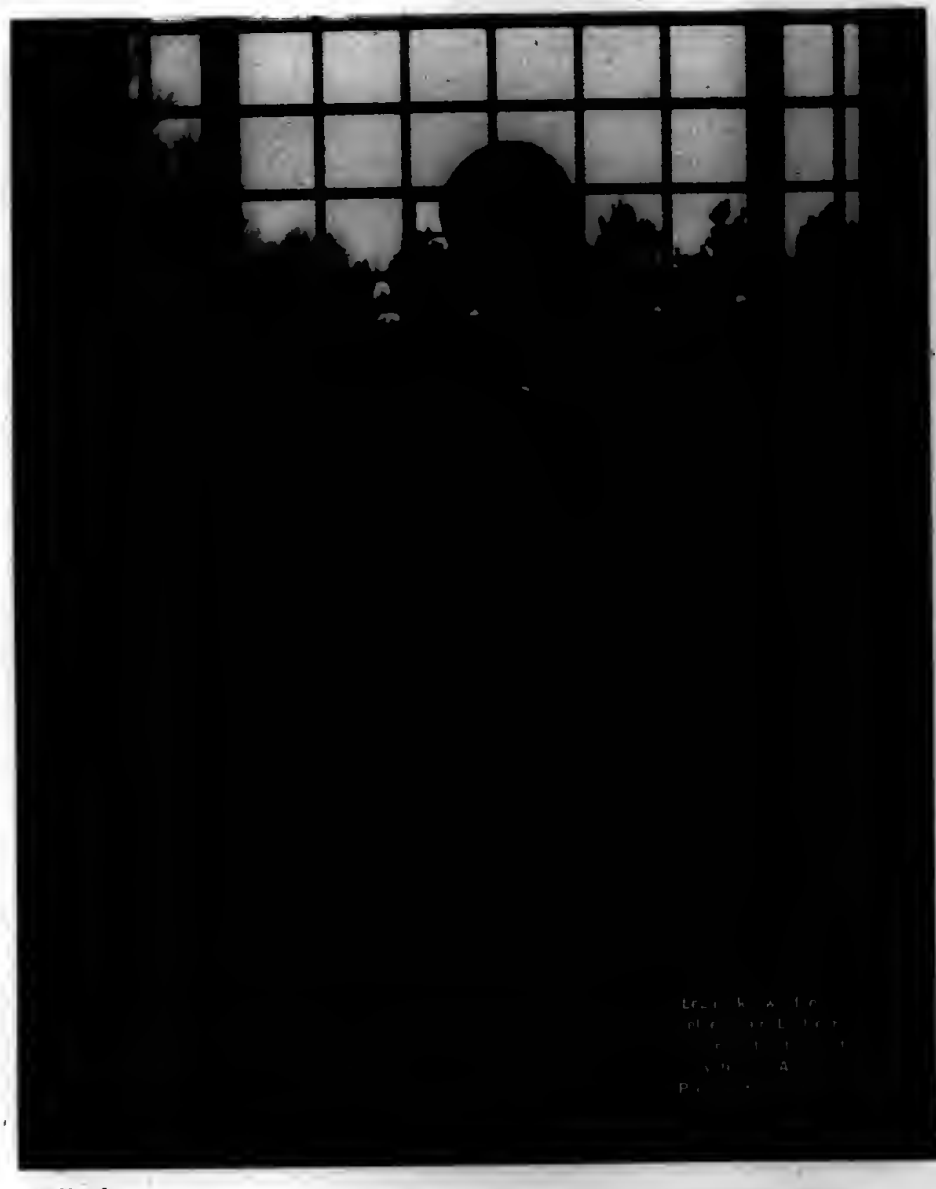
Managing

THE LAST LAUGH

If you wrote off mainframers, think again. IS executives are bringing them back as middle managers now that client/server has gone mainstream.

By Thomas Hoffman and Rosemary Cafasso



No Money, Honey! First Massachusetts Bank makes a crashing debut. *Page 76*

FYI: Ways to avoid alignment agonies. *Page 80*

"He said, 'Don't bury me 'cause I'm not dead yet.'"

– Elvis Costello, *Mystery Dance*

Just look at those old-time mainframers who now are landing new jobs or prospering in high-profile IS management positions. Not only did they not slip into the void of the legacy netherworld — as industry soothsayers predicted just a few years ago when client/server computing exploded — but some have even outmaneuvered IS professionals schooled in PCs and servers to land top jobs.

For large-scale, mission-critical client/server systems to be successful, they must include components of the traditional mainframe environment. These include solid systems management, security, backup/recovery and a disciplined and careful approach to development and deployment.

Other desirable traits include mainframers' understanding of how an application fits into a corporate information technology infrastructure and their grasp of cross-functional systems — not to mention their vast business experience.

David Nicoll, data warehouse project manager, First Interstate Bancorp

It's hard to pin down precise numbers of new jobs available for mainframers, but many chief information officers say they still place top value on these skills. Recent research from the Society for Information Management (SIM) shows this new appreciation for "Cobolers." In "Reshaping the IS Culture," a report sponsored by SIM and IBM and issued late last year, several companies said the disciplines and rigors of mainframe development are critical in today's client/server world [CW, Nov. 27, 1995].

These opportunities are cropping up now more than ever, as the riddles behind client/server computing have begun to emerge. When the first wave of client/server hit, there was an "awareness gap" regarding the value mainframers could bring to the table, says Don Cameron, a partner and consultant at Computer Sciences Corp. in Newton, Mass.

Now that CIOs have had a few years to absorb the complexities of client/server computing, that kind of thinking is changing. "We've seen an awareness growing in our clients that mainframe skills are more transferable than they thought," Cameron says.

Lashing out

When American President Cos. in Oakland, Calif., last year wrapped up a companywide re-engineering effort, which included business units and its information systems group, Claire Lash, a self-described mainframer, landed a primo job.

Under the new structure at American President, each business unit now has an IS group assigned to it. Lash, who had worked in IS at the company for 10 years, was promoted to director of systems at the worldwide support center business unit. The unit handles customer support for the company's railway and ship transportation business.

Lash's group is responsible for maintaining this unit's systems, which are mostly legacy programs. Lash says the worldwide support center is slowly migrating to client/server systems. One effort under way is building a data repository based on an Oracle Corp. relational database management system.

As she embarks on that project, Lash insists that her programmers model the data carefully, determine where the flaws are and make sure the mistakes aren't proliferated throughout the new database. In other words, she's determined to ensure data integrity, one of those rock-solid mainframe attributes that is so vital to client/server projects.

Diane Silver, a vice president of information strategy at American President, was one of several senior IS managers who interviewed and then promoted Lash to her current position last October. Silver says it was Lash's mix of skills — her legacy systems knowledge in particular — that made her such a good fit for the new position.

"She worked for me for a long time," Silver says. "She has fabulous technical skills. She started as a programmer. She was a systems architect. She has a tremendous amount of legacy knowledge."

Dave Merrett, director of systems development, Canadian National Railways

Banking on experience

When First Interstate Bancorp decided to build a companywide IBM DB2-based data warehouse in 1994, the Los Angeles-based bank decided it needed someone with strong legacy and people skills as it moved to a client/server-based architecture.

"We're building data marts in client/server in addition to building large data warehouses," says John Chatfield, senior vice president of data services at First Interstate. The bank's merger with Wells Fargo Bank is expected to be completed in the second quarter this year.

"Data marts" are smaller, specialized subsets of data warehouses. Building them requires intimate contact between IS and end users before, during and after the systems have been delivered, Chatfield explains.

That's just one of the many reasons Chatfield and other First Interstate executives selected David Nicoll as a data warehouse project manager in September 1994. Chatfield says Nicoll was recruited from First Boston Corp. primarily for his interpersonal skills, his keen judgment, emotional stability and flexibility. (Nicoll has crisscrossed from England to Kuwait to the U.S. during his 25-year career.)

In this era of corporate downsizing, "people are going to have to be more flexible about relocating," says Nicoll, 45. He began his IS career in 1970 at Rolls Royce PLC, where he was a Cobol programmer who helped develop aircraft engine assembly systems.

Along the way, Nicoll has sharpened his technical and leadership skills. From 1979 to 1986, he worked for a consultancy as a team leader and built payroll, personnel and housing systems for the Kuwaiti government. From there, he joined First Boston (now CS First Boston Corp.), where he picked up C and Windows programming skills.

This background has served Nicoll well in his current job where he coordinates the work of the database administrators, the data analysts and end-user computing representatives who report to him. In the course of his work, he makes sure they stick to the bank's timetables for rolling out each phase of the repository.

Working on the railroad

As CIO at Canadian National Railways, Ronan McGrath is ultimately responsible for a vast network of 200 LANs and 15,000 PCs. But he's also running about 1,600 MIPS of mainframe processing power.

That's why McGrath has placed some old-time mainframers in key IS management positions and will continue to do so. They include Dave Merrett, whose career at the railroad went on track 27 years ago and who now holds one of the most critical IS jobs at the Montreal-based company.

Since 1993, Merrett has been director of systems development for the company's mainframe-based railway transportation system. The software is the key transaction processing system in the company and cost $100 million to license and implement. It will be the foundation on which client/server and desktop applications will be built. The software handles 600,000 transactions per day.

"I think there was a view that things get done quickly in the PC world and folks who once wired boards into 1401s (one of the original IBM computers) wouldn't understand it," Merrett says. "There is some truth to that, but there are a lot of disciplines from the old world that are really important."

Given how much was riding on the railway transportation system, McGrath wanted seasoned veterans. "I put Merrett there because he understood our business and he understood the process flow extraordinarily well," McGrath says. "He obviously understood the technology, but more importantly, he understood the business."

McGrath says that because this project was so complex, "we couldn't have done that with PC-based people." ■

Hoffman is a *Computerworld* senior editor, IS management. Cafasso is a freelance writer in Walpole, Mass.

NO Money, Honey

ATMs that couldn't cough up cash spoiled the debut of First Massachusetts Bank. *Robert L. Scheier* pins down what went wrong.

Here's a lesson for information systems managers: When the stakes get really high and really public, you need to get really fanatic about checking details.

That was made painfully clear over Presidents Day weekend as the IS staff at First Massachusetts Bank in Worcester, Mass., struggled to convert 23 automated teller machines (ATM) it had acquired from Shawmut National Corp. to its own system.

On Saturday, customers found their Shawmut Bank ATM cards were worthless. Many found that their new First Massachusetts ATM cards didn't work either. These problems were caused by hardware and software glitches in the conversion of the ATMs, which Hartford, Conn.-based Shawmut sold as part of its acquisition by Fleet Financial Group in Providence, R.I.

Needless to say, customers were "very angry," says Cheryl Fatnassi, vice president and director of electronic delivery systems at Banknorth Group, Inc., the Burlington, Vt., bank holding company that owns First Massachusetts.

The snafu shows the "monumental number of picky details that have to be checked" in such conversions and the need to treat the process as a rigorous science, says Art Gillis, president of Computer Based Solutions, Inc., a banking consultancy in New Orleans.

Fatnassi did have a project plan, which was based on successful conversions that involved as many as 100 ATMs and more than 100,000 ATM cards. It called for her staff to start updating hardware, software and telecommunications links at ATMs after the purchase closed Friday at 2 p.m. and be finished by Sunday. But not-so-obvious differences among ATMs soon popped up.

Some ATMs wouldn't run the bank's bilingual user interface, for example, even though they had supposedly received the necessary upgrades. "We had to pull every board" and read chip numbers to make sure each ATM had the proper version of firmware, Fatnassi says. That, plus the need to fix physical components such as cash dispensers, meant the last ATM wasn't upgraded until Tuesday morning.

Jane Sacinski

In previous conversions, Fatnassi's staff had access to the ATMs before the sale. "That was an item that we had discussed with [Shawmut] regularly, right up to the week of the conversion," she says. "In the end, they decided it was too much." Shawmut was selling different branches to different purchasers at the time of the First Massachusetts conversion and would have been overwhelmed scheduling ATM inventories for different purchasers and all the other work involved in a bank sale.

Meanwhile, Fatnassi's staff found that even upgraded ATMs weren't working with some of the new cards. It turned out First Massachusetts had misinterpreted a decryption code for the personal identification numbers (PIN) that Shawmut had provided to First Massachusetts. If the algorithm subtracted two from zero, "does that create an 'eight' or a 'negative two?'" Fatnassi says. Her staff assumed the algorithm in the decryption code worked the same as similar algorithms they had used in previous conversions. They assumed wrong. Many customers were assigned the wrong PIN, and their cards didn't work, Fatnassi says.

After First Massachusetts cleared up that confusion, it had to rerun the algorithm, verify the new PINs would work and then transmit them to Deluxe Data Systems, Inc. in Milwaukee, which processes ATM transactions for First Massachusetts.

That work wasn't finished until 1 a.m. Monday, but even then the problems weren't over. At 9:11 a.m. Central time Wednesday, an operating system error crashed not one but two of the Tandem computers Deluxe uses to process ATM transactions, says Ron Ball, vice president of marketing. The Tandems were back up in two hours, but it was another four hours before First Massachusetts' ATMs came back on-line.

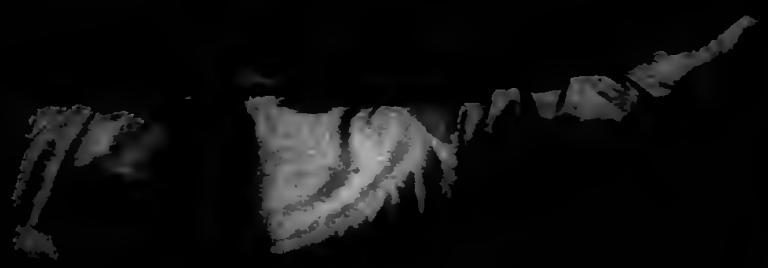
By the end of the week, the ATMs were working and the furor had died down. Bank spokesman David Reville says he has "no idea" how many customers the bank lost because of the glitch.

What lessons has Fatnassi drawn? As for the ATMs, there is "probably nothing we could do differently" because of lack of access to them before the sale. Fatnassi says in the future she will require examples of calculations performed with the algorithm "to make sure that what we think we heard is what they said."

Gillis says he would move heaven and earth to make sure he had all the information he needed before attempting such a conversion again. "Unless I know exactly what I'm dealing with, I'd be courting disaster," he says. An ATM conversion "is a space shot, and sometimes the O-rings aren't right and the Challenger blows up. It's the kind of disaster where one is too many." ■

Scheier is a *Computerworld* senior editor, management

SMALL BUSINESS SOLUTIONS WAN BACKBONE SOLUTIONS HOME OFFICE SOLUTIONS FDDI SOLUTIONS
SERVICE AND SUPPORT ATM SOLUTIONS
ETHERNET SOLUTIONS TOKEN RING SOLUTIONS



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Don't come in last, like I did.

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He asked me if I'd like to invest in something new.

He explained how he thought that one day, people everywhere would wear athletic shoes all the time. For all kinds of things. And he showed me some drawings of shoes, with the oddest looking logo I'd ever seen.

"Sounds very interesting," I said, trying not to sound too patronizing. "But new things tend to make me nervous." And with that, I excused myself.

Now unless you've been living on another planet the past twenty years, I don't have to tell you what happened to that man and his idea.

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Then I read that Microsoft actually used the MIPS processor to develop Windows NT. And that lots of Fortune 500 companies are already successfully using it.

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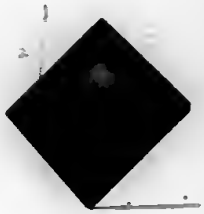

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F.Y.I.

Avoiding alignment agonies

What a meeting! Three hours of users yelling in your ear. You need some ways to align information systems with your tormentors — and you need them badly. A new study from The Society for Information Management's (SIM) Advanced Practices Council might help.

Carol V. Brown

SIM asked two professors to interview 44 leading chief information officers on the mechanisms they most rely on to build effective IS/business partnerships.

CIOs are using many techniques, they report. "You have to use several tools at once from your tool kit," says Carol V. Brown, an assistant professor at Indiana University in Indianapolis. "You also have to change and adjust the tools over time and continually experiment."

Their findings include the following:

- These firms rely on people who are contact points between IS and other departments, business units or business processes. They can be midlevel IS managers or high-level divisional IS executives. Companies are having trouble finding people with the right skills. Some CIOs are raiding consulting firms to fill these jobs.
- IS steering committees made up of non-IS executives are now more popular at the business-unit and project level than the corporate level. CIOs are also fond of councils of senior IS managers. One reason is to prevent IS managers from overidentifying with users.
- Informal contacts with users remain important.
- CIOs are experimenting with rotating IS staff through temporary assignments and asking direct reports to be their training champions.
- Relatively few CIOs are relying on electronic mail, videoconferencing and other technical means to coordinate IS with users.

The full report is available by contacting SIM at (312) 644-6610 or at **info@simnet.org**. The cost is $175 for members and $350 for nonmembers. Brown can be reached at **cbrown@indyvax.iupui.edu**. Her "co-investigator" is V. Sambamurthy, an associate professor at Florida State University in Tallahassee. He can be reached at **smurthy@cob.fsu.edu**. — *Allan E. Alter*

IT services focus of new expo

The Javits Center in April isn't springtime in Paris, but information systems managers who pay good money to information technology service firms should note this new Gartner Group event: the **IT Services & Outsourcing Strategy Conference and Exposition**, New York, **April 23-25**.

Gartner hopes to make this the top conference/expo combo for the IS services industry. The conference focuses on strategy and IS management; speakers are mostly Gartner consultants, leavened with IS executives from Aetna, British Petroleum and Carrier. Gartner hopes to get outsourcers, asset managers and other service providers to exhibit; ADP, ENTEX, IBM, Keane, Unisys and Xerox are among those that have already signed on.

Fees: $495 for one day to $995 for all three days. **Contact:** Expocon Management Associates, (203) 256-4700, ext. 139.

Boris A. Babayan

Executive Track

WizCom International Ltd., the reservation processing subsidiary of Avis, Inc. in Garden City, N.Y., has appointed **Thomas H. Murphy** vice president. The former vice president of information services at Omni Hotels will supervise the implementation of a reservation and rental management system at Budget Rent A Car.

Larry Kittelberger has joined **AlliedSignal, Inc.** as vice president and chief information officer.

He will assume responsibility for developing worldwide information systems for the company, which is based in Morris Township, N.J., and operates some 400 facilities in 40 countries. Kittelberger had been with Tenneco for 25 years, most recently as the CIO of its Newport News Shipbuilding division.

William A. Bautz was recently named senior vice president at **New York Stock Exchange, Inc.** He will report to Robert J. Britz, group executive vice president at the exchange.

Previously, Bautz was managing director of global systems at American Express Bank Ltd., which he joined in 1988. He has also held IS positions at Shearson Lehman Brothers, Inc. and IBM.

C. Lawrence Meador was recently appointed senior vice president and division IS officer at **Cigna Property & Casualty Cos.** Previously he was Cigna's senior systems officer.

Before joining the Philadelphia-based insurance and financial services firm, Meador founded Management Support Technology Corp. in Boston. In addition, he serves on the academic staff at MIT's School of Engineering.

Health care CIO compensation

Salaries are rising in the field . . .

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BASE SALARIES BY NUMBER OF BEDS IN HOSPITAL

Hospitals with fewer than 200 beds

CIOs with base salaries under $69,000: **64%**

CIOs with base salaries over $119,000: **7%**

Hospitals with more than 999 beds

CIOs with base salaries under $69,000: **2%**

CIOs with base salaries over $119,000: **53%**

SOURCE: 1995 survey of approximately 300 chief information officers in the health care industry by the College of Healthcare Information Management Executives, a professional association in Ann Arbor, Mich.

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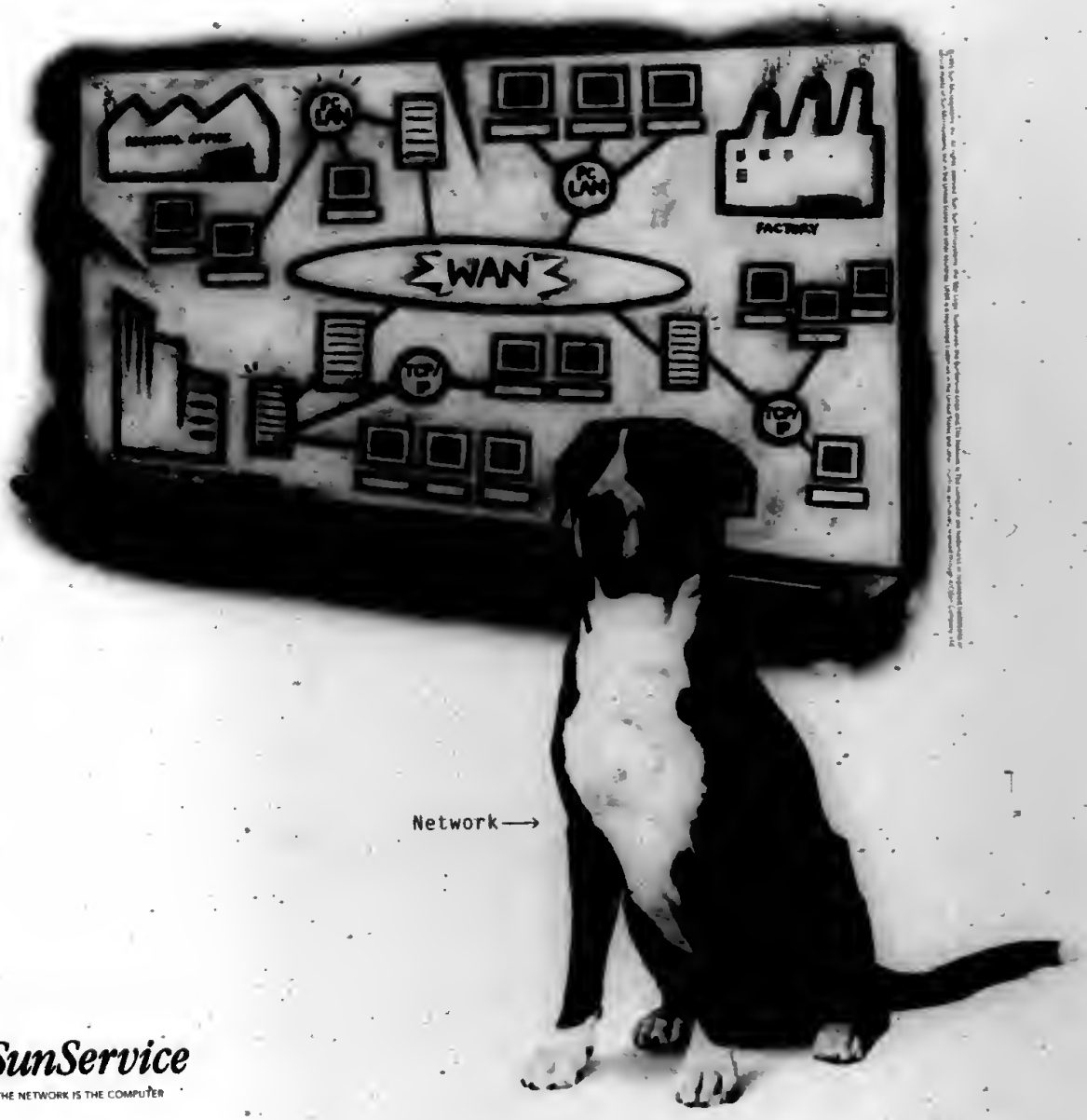

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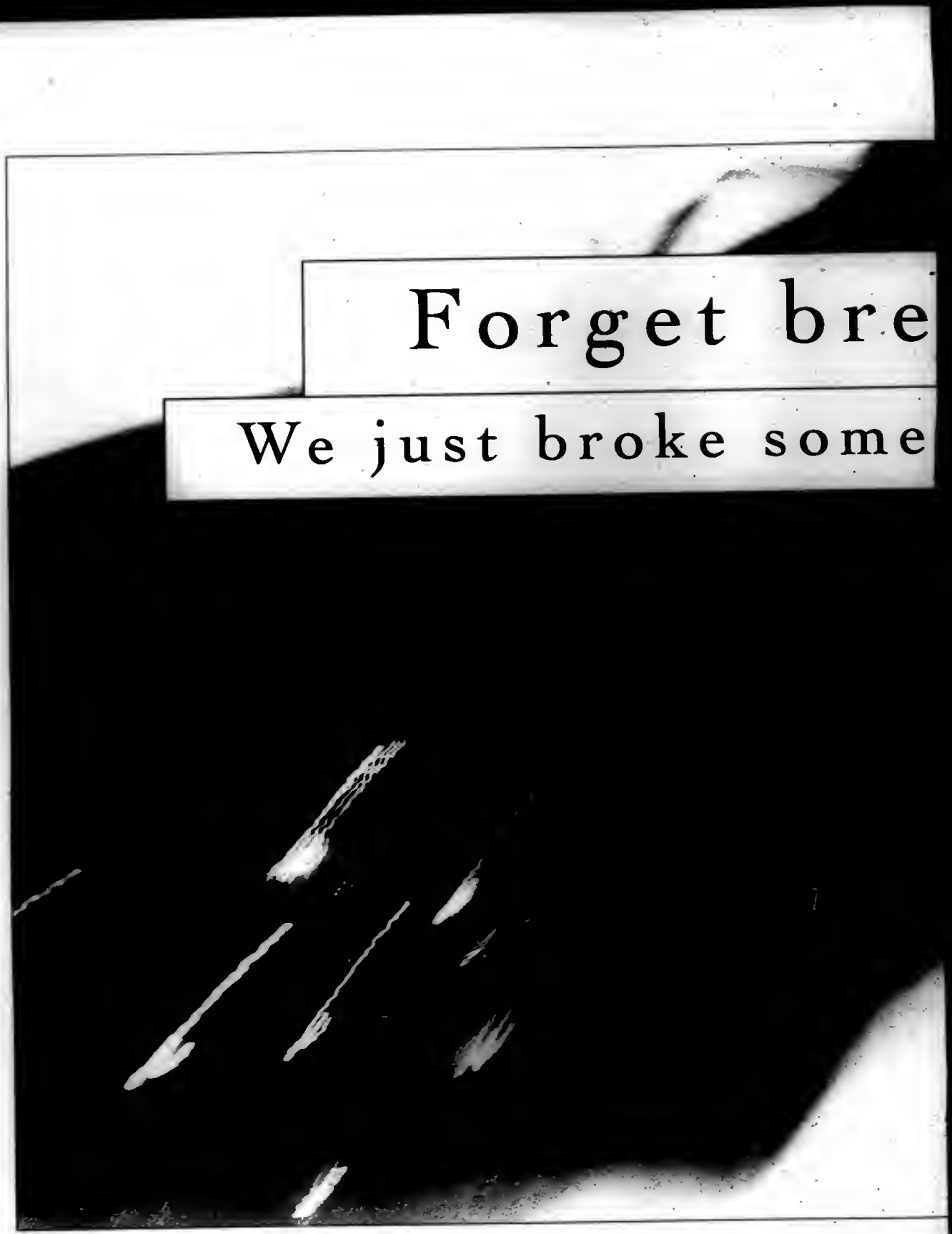

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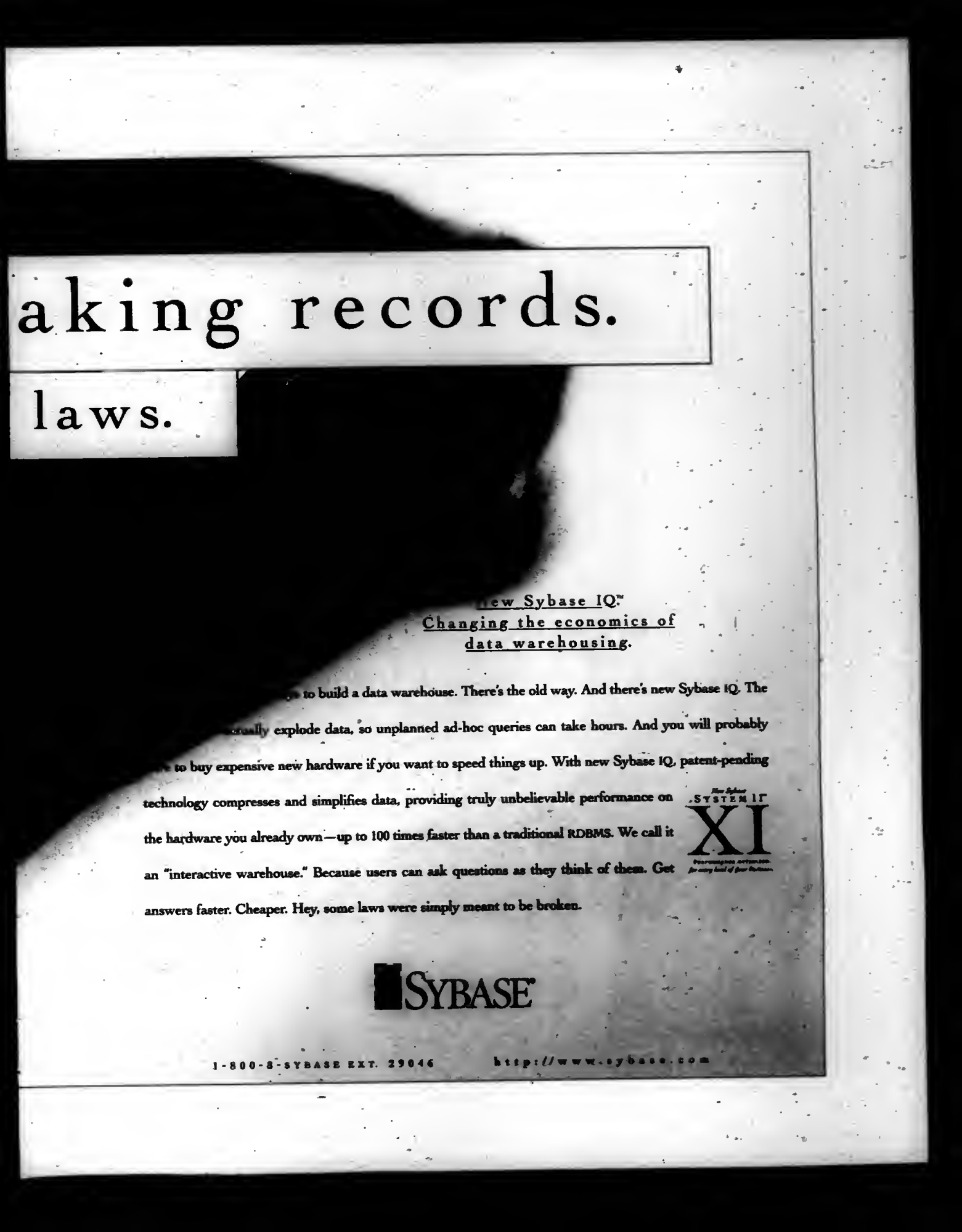
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answers faster. Cheaper. Hey, some laws were simply meant to be broken.
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In Depth

By Mary Ellen Bercik

Cybrarian to the rescue

She gets people out of jams. Whether getting the lowdown on competitors, the scoop on new products or doing a speedy

6:30 a.m.

Java! Not the language, the beverage. We cybrarians live on it, and my little programmable pot has it ready for me by 5:45 a.m. I wish all technology could be as simple and supportive as that coffeepot.

I check my electronic mail while I'm home to see what to expect when I get to the office at 8.

8 a.m.

I work in the corporate library at Apple Computer, Inc. headquarters. My work involves doing online research for Apple employees worldwide. I find information that my users need so they can create, market and sell next-generation software and hardware. About 40% of the research I do is used for product development and involves technical subjects such as engineering and computer science.

Another 40% is more business-oriented. I help sales and marketing employees investigate new markets and supply company information about current and prospective sales accounts, distribution channels and advertising campaigns. I have helped our worldwide operations groups find suppliers and packaging materials. I have provided real estate information used in site selection for factories and offices and various information used to support business logistics.

The remaining 20% of the questions the library receives fall into the category of "anything an employee needs to know to get his job done." The library staff works closely with executive speechwriters to find quotes for speeches, computer industry time lines to be added to presentations and statistics to support executive statements. John Sculley (Apple's former chairman and CEO) wrote his book *Odyssey* (Harper Collins, 1988) in the Apple library, and his speechwriter would call us to uncover little-known facts or colorful quotes to add to Sculley's speeches.

The library staff gets a little breathing room in the morning to read E-mail and plan our day. We usually arrive earlier than the programmers and research types, who are notorious for late hours.

8:15 a.m.

I sip my third cup of the hot stuff as I look over the slew of requests. They arrive in electronic formats (forms and E-mail), by telephone or in person. Most are sent to a central library E-mail account. The requests are printed out for the research staff to review and select. The researchers determine their workloads and work with one another to ensure that all requests are picked up that day. Turnaround time per request varies from an hour to a week. Most are filled in about two days.

Once a researcher has picked up a request, she logs it into a Claris Corp. FileMaker Pro database that is used to track the request from start to finish. Each month from the database we produce statistics that provide a clear idea of who our clients are, what they are researching, the amount of time and money it took to produce the research, the on-line systems used and other data used in the administration of research services.

My group of five handles thousands of research requests each year. The questions run the gamut. There's the exhaustive: "Everything there is to know about ISDN." (Gag! We'll need to help this person better define his request, unless he wants a couple of gigabytes of information.) Then there's the run-of-the-mill: "What is the forecast market size for ATM networks, handheld computers and set-top boxes?" or "What is the FCC proposing in regard to opening up more broadcast spectrum to the public?"

Jan, a researcher from Apple's advanced technology group, has sent the most interesting request of the day. (Selfishly, I grab it.) Can we get him information on the cave paintings recently discovered by an amateur archaeologist near Vallon-Pont-D'Arc, France? He wants copies of the full scholarly research done by the expert who is excavating the caves and anything we can find about the International Committee on Rock Art. He is also looking for names of Bay Area experts in cave painting and anything we can find on photography in caves.

Jan is investigating the feasibility of making a QuickTime virtual reality movie inside the caves, which would be used in a demonstration prototyping Apple's QuickTime virtual reality technology. (The technology lets you make interactive, three-dimensional spaces by using photos, video stills and computer renderings. The images are then blended together into a QuickTime movie.)

Hmm ... I know I can find information about the International Committee on Rock Art and general news reports about the discovery on Dialog, but no way would there be pictures of the paintings. Before I spend a few hundred dollars searching Dialog, I check the Internet.

I search on Yahoo (http://www.yahoo.com/) using the words "cave painting"

Cybrarian, *page 86*

gathering of current research, this 'net-aholic knows where to go on-line.

Cybrarian

CONTINUED FROM PAGE 85

and get a link to the French Ministry of Culture World Wide Web server. Gold mine! Everything I need on the cave paintings — reports of the findings, experts' writings and, lo and behold, images of the paintings — on my screen. Now I know why they call it Yahoo! It took me less than five minutes to come up with this, and I am *jazzed*. This is the kind of thing that makes your day when you do what I do for a living.

Next, I use Dialog (a proprietary, professional on-line system) to retrieve the rest of the scholarly papers Jan requested. I also gather some articles about cave photography and information about the International Committee on Rock Art from Dialog. Later today, I will edit this information into an easily readable packet and E-mail it to Jan. I still need to find some local cave experts. That will require a few telephone calls and some additional detective work, but I should have that information in the next few days.

10 a.m.

Off to teach a class about navigating the Web. Managers in most departments around Apple are mandating that employees learn the Internet.

Marketing and product support groups have been told to get documents into Hypertext Markup Language (HTML) so they can be posted on Apple's Web server (http://www.apple.com/). Human resources has heard there are employment resources on the 'net, but where? Benefits people need to get the employee handbook and thousands of other benefits-related documents into HTML in three weeks.

Soon, Apple will be delivering its own corporate communications on a private intranet server that will be accessible only from within the company. Apple departments will publish internal documents from there. The two individuals assigned to put benefits-related content into HTML were authoring for the Web before they ever surfed it. I'm impressed! Now they're in my class learning how to navigate the 'net.

In class, I do an overview and discuss protocols, universal resource locators (URL), domains, gophers, file transfer protocol, Telnet and so on. I try to put people at ease by explaining that my Internet training was a lot less formal — I learned on the job. I have since augmented my experience with seminars and classes on writing HTML. Many of the people in these classes are embarrassed by what they don't know. That's where being an information specialist can help; people view us as nonjudgmental.

I wrap up the class with a reminder to my students that the Apple library has a home page on which they can find filtered and organized Internet sites. Two colleagues and I developed the library's home page, and the result is getting good reviews from Apple employees. I tell the students that if they would like additional one-on-one Internet training, they can drop by the library on Tuesdays.

Lunchtime

I should be at the gym, but instead I grab a sandwich from the cafeteria and read my listserv mail, check CNN Interactive and just surf the 'net to see what's going on. This habit has got to stop.

Listservs — for those of you who aren't yet initiated — are E-mail-based discussion groups on the Internet to which you can subscribe. There are thousands of them, and I am signed up on one for Internet trainers called NetTrain.

1 p.m.

An employee from public relations is on the phone. Apple is issuing a release in New York related to our earnings — in an hour. She needs some background information: three competitors' financial results for this quarter. No problem.

Used to be I would jump on Dow Jones or Dialog and check the business wire for this. That would cost anywhere from $10 to $35 per company, depending on the information needed. Now I just hop on to our competitors' corporate Web servers and look for press releases. Nine times out of 10, it's there, and I've just saved Apple upwards of $100 by using the Internet.

Within 20 minutes, I've E-mailed the financial data to PR personnel, who use it to brief executives so they'll be prepared to answer questions at the press conference.

2 p.m.

Howard, a hardware engineer who designs keyboards, comes in looking for the specifications of an ergonomic keyboard that I'll call the ErgoType. He knows the manufacturer (which will remain nameless), so I jump on its Web site to look for technical documentation. Yup. It's there along with the specs: a three-page description of the design and a picture of the keyboard. Fifteen minutes after Howard arrives, he's trotting back to his office with the information I downloaded. He will compare the specs used in the ErgoType against ones used by Apple in its keyboards.

We used to pay good money (like thousands or tens of thousands of dollars) on an annual basis to get this kind of information from a market research firm. By using the Web, I just got this for nothing and retrieved it in a quarter of an hour.

Don't get me wrong, not everything on the 'net is free. Many of the information providers publishing on the Internet have figured out business models and now charge for information. For example, during the beta period of the *Mercury News* in San Jose, Calif., you could get all its daily news stories for free. Now, some are free, but you pay a subscription fee to access the late-breaking stories.

3 p.m.

Most cybrarians I know are information addicts. They want to look at everything. A lot of what makes me a good information specialist, though, is knowing how to *evaluate* information sources (see box).

The basic principles are fairly consistent across all media: Is it current? What gives the publisher authority? Are the authors recognized experts? How did they get their information, and how reliable is it? You need to ask these questions constantly.

Even with the terrific search engines available, people have a heck of a time finding what they need on the 'net. I guess it's a kind of job security for me, but I'm not cocky about it. I know I have to stay on the cutting edge, or my days are numbered.

My philosophizing is interrupted when the phone rings. It's Julia, a researcher in the Advanced Technology Group. She's trying to locate experts who are working with ferroelectric liquid crystals. She has an idea about how liquid crystals might be used in future screen technologies, and she wants to discuss it with them.

I know that Max Planck Research Group in Halle, Germany, has a home page that lists the names, addresses and phone numbers of researchers who work with liquid crystalline systems. (I know this because I was at the home page the other day doing research for another client. I bookmarked the URL, knowing that questions about liquid crystals come up now and then.) I E-mail Julia names, addresses and the URL in less than 15 minutes. *This is what I love about my job!*

3:30 p.m.

One more cup of joe, and that's it for the day. I whip out some E-mail, return a few sales calls, then hunker down to do HTML scripting. I've authored several Web pages for the Apple library home page, and it's time to add to them. It's my job to evaluate and select Internet sites that will be useful.

I also check the sites I've already listed to make sure they still provide useful content. I take off my shoes, launch my text editor and away we go! ■

As of this week, Bercik left her job as supervisor of research services at Apple Computer, Inc. to become manager of information services at VLSI Technology, Inc. in San Jose, Calif. She can be reached at mbercik@aol.com.

Insider searching tips

If you take a few minutes to outline a search strategy, it will pay off. Ask yourself, where have you found this information before? How common or obscure is the topic? What key words or terms are used to describe it? The answers will help you make educated guesses about which search tool or database to use.

- **PHRASE SEARCHING.** If your topic is obscure, search in large databases that index thousands of Internet servers such as WebCrawler (http://webcrawler.com/) or Alta Vista (http://altavista.digital.com/). Search on key words without restrictions. Don't look for an "exact match" or require the word be found in a particular part of the document. Think of as many synonyms as possible for the key words. Also, don't forget there are different ways to spell the same word, depending on country of origin.

- **BE AWARE OF CASE SENSITIVITY.** If software you then use for any future work can handle it, Boolean (explained, specific logic rules to narrow or broaden a search) and other search commands — one of the most time-consuming parts of an Internet search is trying. Always use the simplest or specific key words you can think of. Don't overdo on common words or variants.

- **USE POWER FEATURES.** The search engines that offer power searching features such as The Open Text Index (http://www.opentext.com/omw.html) or Alta Vista. Using The Open Text Index's Power Search, for instance, you can specify whether the home page for key words are located such as title, summary or URL. You can indicate the relationship between the key words by selecting And, Or, Not, Near, Phrase or Sentence. Professional searchers call this "precedence searching," and it's extremely important for narrowing results to fulfill their information needs.

Weighted searching in The Open Text Index ranks the Web pages matching your key words by frequency. Should found frequently and whether the word is present or absent from the document. You can specify the location of the key words, their relative importance and search terms by giving it a numeric weight. The more specific your search, the more specific your results.

Alta Vista's Advanced Query lets you display results in various forms as standard, compact, detailed or ranked only. This is very helpful for quick scanning of results.

—Mary Ellen Bates

Strained bedfellows

For some webmasters, managing the new marriage between IS and users comes easily. For others, this is no honeymoon.

BY DAVID WELDON

L. L. BEAN

Make sure to take it personal

When Steven Nickerson began to develop the first Internet home page for L. L. Bean, Inc. last year, he discovered a stumbling block where he least expected it — his personal communication skills.

As corporate systems specialist at the Freeport, Maine, outdoor clothing and equipment retailer, Nickerson served as a technical consultant to business users and as the main information systems contact with the Massachusetts company that would build and maintain L. L. Bean's World Wide Web site.

The project had strong buy-in from marketing, IS and management, and a special project team had been established to carry it out. Everything was in place except for one critical ingredient: Nickerson hadn't mastered the personal skills his new relationships required.

The result was a breakdown in communications. Business users knew what information they wanted. The project group did a good job of explaining marketing's needs. But Nickerson didn't always respond quickly. But he learned quickly the pitfalls of not building strong relationships with the users with whom you're going to build Internet sites.

Eventually, Nickerson's boss, the vice president of IS, appointed a facilitator to work with the team.

"The facilitator [helped] the new business users take their requirements and boil them down into a project that IS could take a bite out of," Nickerson says. "Part of the reason a facilitator was needed was because I wasn't doing a good job. Communication skills are something I've found myself needing to really improve. [The users are] very good at asking the right questions, but I'm not always able to give answers as fast as they need them."

Six months later, L. L. Bean's Web site is up and running. Catalog and company information are easily accessible. The facilitator still works closely with the project group as it prepares the next phase of content for the Web site. And Nickerson says he's learning to be more open and understanding: "A business relationship is like a personal relationship — it takes effort, time, compromise."

HARLEY-DAVIDSON

Never having to say you're sorry

That level of openness and mutual understanding is something that Richard L. Koble is counting on heavily at Harley-Davidson, Inc. in Milwaukee.

As director of IS, Koble has been in the thick of things since Harley marketing executives last year asked IS to develop the motorcycle company's first Web page. The goal: Give customers access to information about specific motorcycles or biker rallies planned for their area.

Koble says key marketing and IS employees formed two project teams to tackle systems issues and address business concerns. A key factor in their makeup was that members had worked together before.

"The good news is that we're starting from a good relationship. There has been a lot of trust in each other," Koble says. That bond also is reinforced by good relations between Koble and his peer in the marketing division, Steve Piehl.

"Steve has a very good view of [information technology] and has some experience on the Internet," Koble says.

"Because this is all new stuff, communication skills are very important. Unless you go forward asking a lot of questions and developing a rapport, you probably won't get very far. Tolerance for that ambiguity is very important," Koble says.

THE WHITE HOUSE

Showing them who's boss

Not all business users are so accommodating to the needs of IS. One of the biggest headaches for Richard Borchelt is when business users ignore his needs for maintaining their Internet content.

As public affairs specialist for the Office of Information Sciences at the White House, Borchelt is responsible for posting and maintaining the on-line content for the Office of Sciences and Technology on the White House home page. The content includes electronic versions of public statements made by President Clinton, copies of press releases and committee reports.

Borchelt has no problem with buy-in from the top. No public documents can be released in print until they are also ready to go on-line — by executive order.

Borchelt says the biggest strains in his relationships come when users are unrealistic about IS time and staff. "We have few on staff here at the White House who can convert these huge, often very graphically intense documents," he says.

When his users show up with a committee report in one hand and no compatible disk or electronic format in the other, the report goes nowhere. That mistake can delay public release for up to six weeks. They learn quickly, Borchelt says. ■

Weldon is *Computerworld*'s senior editor/Careers.

MAKING THE MARRIAGE WORK

Web site developers should make the following vows with their business relationships:

- **Know your partners — pick project members who have worked together**
- **Have no secrets — open communication is the most important skill**
- **Patience is a virtue — both sides need time to learn the other's needs, limits**
- **Be tolerant — this is a new role for all involved, so don't rush things**
- **Meet in the middle — be willing to compromise on deadlines, expectations**

Industrial Light & Magic

Career Watch

Conferences and events of interest for IS career development

EDUCATION
First Annual National Collegiate Conference
April 19-20
Marriott and Sheraton hotels
Corpus Christi, Texas
Sponsored by DPMA — The Association of Information Systems Professionals.
A conference targeted at IS students. Top IS speakers will present a variety of industry-specific topics and a look toward the future of the industry. A Career Forum will focus on job-search issues such as interviewing and resume preparation.
Contact: Sheri Fox, DPMA, Park Ridge, Ill., (708) 825-8124, ext. 225

TRAINING
Training Directors' Forum
12th Annual Conference
May 2-5
The Buttes Resort
Tempe, Ariz.
Sponsored by Training Directors' Forum and *Training* magazine.
The role of IS trainers and IS-enabled training will be explored in session topics such as technology-delivered instruction, multimedia classrooms, just-in-time training, corporate universities and World Wide Web-based training.
Contact: Training Directors' Forum Conference, Minneapolis, Minn., (800) 707-7792

RECRUITMENT
Corporate Technical Recruiting Conference
June 2-5
Inverness Conference Center & Resort
Denver
Sponsored by *Computerworld*.
A conference aimed at corporate technical recruiters. Keynote speakers include adventurer and prize-winning photographer Brian O'Malley, who will discuss "Setting Goals, Accepting Challenges, Taking Risks: Working As a Team and Pursuing Your Dreams," and *Computerworld* editor Paul Gillin, who will speak about "The Top 10 Trends Affecting IS Careers."
Contact: *Computerworld*, Framingham, Mass., (800) 488-9204

PROJECT MANAGEMENT
ProjectWorld
Aug. 5-8
Site to be announced
Washington
A conference for IS project managers and team leaders. Session topics include team-building, vendor partnering and performance measurement. Also will be held Dec. 11-13 in Santa Clara, Calif.
Contact: ProjectWorld Conferences, Wellesley, Mass., (617) 431-9799

A job by any other title

Changing technologies means new titles. For some, the responsibilities now defy description.

BY JILL VITIELLO

Scan the help wanted ads and home pages, and you'll see ads for jobs that didn't exist 10, or even two, years ago: network administrator, information systems team leader and webmaster.

Job titles are evolving. In the early 1990s, the demand for "business systems analysts" signaled corporate America's need for IS professionals who could communicate with people throughout the company and provide technical solutions for a bottom-line impact. Today, companies want IS professionals skilled in the Internet, but it's hard to find them by their titles alone.

"The title 'webmaster' is an oxymoron," says Yoon Chung, technical analyst in charge of network operations at American Express Publishing in New York and resident webmaster. "Not many people have more than two or three years' experience on the Web, and 'master' is a lofty title for so little experience."

How about Web wizard? That's the title Molly Collins created for herself while she was in charge of the World Wide Web site at Eastman Chemical Co. in Kingsport, Tenn. Collins says she created the offbeat title to differentiate herself from webmaster or -mistress, which indicates technical responsibility as opposed to her bailiwick, which is content.

Lately, observers have noted a trend toward broader job titles that connote expertise and status.

"We see a trend away from specific, well-defined job titles and toward titles that cover wider responsibilities and indicate the broader skill sets required," says Mary Lowe, business services manager at The National Survey Group of William M. Mercer, Inc., a major compensation consulting firm that tracks and benchmarks job titles and their corresponding salaries.

What do YOU call a webmaster?

"Webmaster Report" cites these job titles to describe people involved with creating and maintaining their companies' Web sites:

- Interactive communications manager
- Manager of electronic commerce, marketing
- Manager of financial and administrative systems
- Senior administrator of on-line services
- Marketing communications manager
- Vice president of content

Consider Richard Morris, whose official title at Ortho McNeil Pharmaceutical Corp. in Raritan, N.J., is IS consultant. Morris has gone from programmer trainee to programmer to senior programmer/analyst and IS consultant. His job responsibilities are so broad they defy description, he says.

"The title 'webmaster' is an oxymoron. Not many people have more than two or three years' experience on the Web, and 'master' is a lofty title for so little experience."

— Yoon Chung, technical analyst in charge of network operations, American Express Publishing

"My tasks vary from something as simple as moving PCs, to managing a companywide project and a team of six people, to making presentations to the board," Morris says. "My colleagues' jobs are just as diverse. We're not 'siloed' anymore — we work across IS functional lines. I really couldn't come up with an accurate job title for all we have to do."

That makes setting salaries a bit more difficult than in the past. Companies determine salaries for new job titles by matching the necessary skills to jobs already classified within their compensation systems.

A hot job such as webmaster, for example, is "part analyst, part programmer, part artist and part rogue," according to Richard Wonder, founder of IS executive search firm Richard Wonder and Associates in New York. The shortage of Web-experienced IS professionals means qualified people can command $100,000 from Fortune 10 companies to manage Web projects worldwide and about $70,000 from Fortune 1,000 companies to administer their system, Wonder says.

"The most common title begins, 'I need someone who . . . ,' and then fill in the blank," says Paul Eichhorn, LAN support specialist at Desaulniers MacLeod Ltd., an IS search firm in Chicago.

Ironically, most of the people interviewed for this article didn't know their official job titles or didn't have one. When asked how they should be identified, many invented titles on the spot that at least partially described their functions and level of authority. ■

Vitiello is a freelance writer in East Brunswick, N.J.

Book reviews: Armed for the job-hunting revolution

On-line databases and electronic resume scanners change the way employees find new jobs

BY STEPHEN ALEXANDER

These two books are about the same topic: The way computer databases are changing the way people look for jobs. Both are written in nontechnical terms. But information systems professionals should read them for valuable tips about on-line and Internet databases that contain resumes, classified ads and employer information.

Electronic Job Search Revolution is the better book because it has more to say about developing a strategy for your electronic job search.

Read the second chapter, which talks about electronic resume databases for white-collar professionals and offers tips about costs and confidentiality. The chapter also explains that resumes that are sent to on-line jobs databases will be scanned by computer for key words.

To be successfully matched with a job, you must list your skills by their full technical names and include the number of years of experience in each skill. Any paraphrasing or generalizing decreases your chances. Don't be original in answering these ads, the authors say. "Work hard to make your cover letter and resume directly reflect the ad — yes, use the same key words and synonyms for those key words."

Electronic Job Search Revolution, Second Edition
By Joyce Lain Kennedy and Thomas J. Morrow
John Wiley & Sons, Inc., New York, 183 pages, $12.95 (paperback)

Electronic Resume Revolution, Second Edition
By Joyce Lain Kennedy and Thomas J. Morrow
John Wiley & Sons, Inc., New York, 228 pages, $12.95 (paperback)

Electronic Resume Revolution explains how to create a resume and how an employer is likely to use it. Read chapter one to learn why sending multiple resumes — each stressing different skills — to different people in the same company is no longer a good idea.

"When you double-up or triple-up on resumes, you probably will be spotted as a person who is unfocused or, worse, not straightforward," the authors quote one expert as saying.

The authors say electronic resumes should be written with nouns, not the action verbs your English teacher recommended.

The authors quote one expert as saying, "Nouns that state specific skills — Unix, [total quality management] and leadership, for example — are the best kinds of words to guarantee [computer] selection" of a resume. "The candidates with the greatest number of desired buzzwords — plus desired company experience — will rise to the top of the short list."

Because these job search books are written to appeal to a broad audience, some may dismiss them as lightweight. But they will be worth the purchase price if even one of these valuable tips helps your resume get noticed. ■

Alexander is a freelance writer in Edina, Minn.

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30. Medical/Law/Education
40. Wholesale/Retail/Trade
50. Business Service (except DP)
60. Government - State/Federal/Local
69. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
99. Other _____ (Please specify)

2. TITLE/FUNCTION (Circle one)
IS/MIS/DP MANAGEMENT
19 Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
21 Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Administrative Services
23. Dir./Mgr. Sys. Development, Systems Architecture
31 Programming Management, Software Developers
41 Engineering, Scientific, R&D, Tech. Management
60 Sys. Integrators/VARs/Consulting Mgt.
CORPORATE MANAGEMENT
11 President, Owner/Partner/General Mgr.
12. Vice President, Asst. VP
13. Treasurer/Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
91 Sales & Mktg. Management
70 Medical, Legal, Accounting Mgt.
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
99. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all this apply)

Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No

4. How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1 At this location	2 Entire Organization
A. 20,000 +	☐	☐
B. 10,000 – 19,999	☐	☐
C. 5,000 – 9,999	☐	☐
D. 1,000 – 4,999	☐	☐
E. 500 – 999	☐	☐
F. 100 – 499	☐	☐
G. 50 – 99	☐	☐
H. 20 – 49	☐	☐
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K. 1– 9	☐	☐

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30 Medical/Law/Education
40 Wholesale/Retail/Trade
50 Business Service (except DP)
60 Government - State/Federal/Local
69 Communications Systems/Public Utilities/Transportation
70 Mining/Construction/Petroleum/ Refining/Agriculture
80 Manufacturer of Computers, Computer-Related Systems or Peripherals
85 Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90 Computer/Peripheral Dealer/Dist./ Retailer
99 Other _____ (Please specify)

2. TITLE/FUNCTION (Circle one)
IS/MIS/DP MANAGEMENT
19 Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
21 Dir./Mgr. MIS Services, Information Center
22 Dir./Mgr. Network Sys., Data/Tele Comm., LAN Mgr. /PC Mgr. Tech Planning, Administrative Services
23 Dir./Mgr. Sys. Development, Systems Architecture
31 Programming Management, Software Developers
41 Engineering, Scientific, R&D, Tech. Management
60 Sys. Integrators/VARs/Consulting Mgt.
CORPORATE MANAGEMENT
11 President, Owner/Partner General Mgr.
12 Vice President, Asst. VP
13 Treasurer/Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
91 Sales & Mktg. Management
70 Medical, Legal, Accounting Mgt.
OTHER PROFESSIONAL MANAGEMENT
80 Information Centers/Libraries, Educators, Journalists, Students
99 Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all this apply)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No

4. How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1 At this location	2 Entire Organization
A. 20,000 +	☐	☐
B. 10,000 – 19,999	☐	☐
C. 5,000 – 9,999	☐	☐
D. 1,000 – 4,999	☐	☐
E. 500 – 999	☐	☐
F. 100 – 499	☐	☐
G. 50 – 99	☐	☐
H. 20 – 49	☐	☐
J. 10 – 19	☐	☐
K. 1– 9	☐	☐

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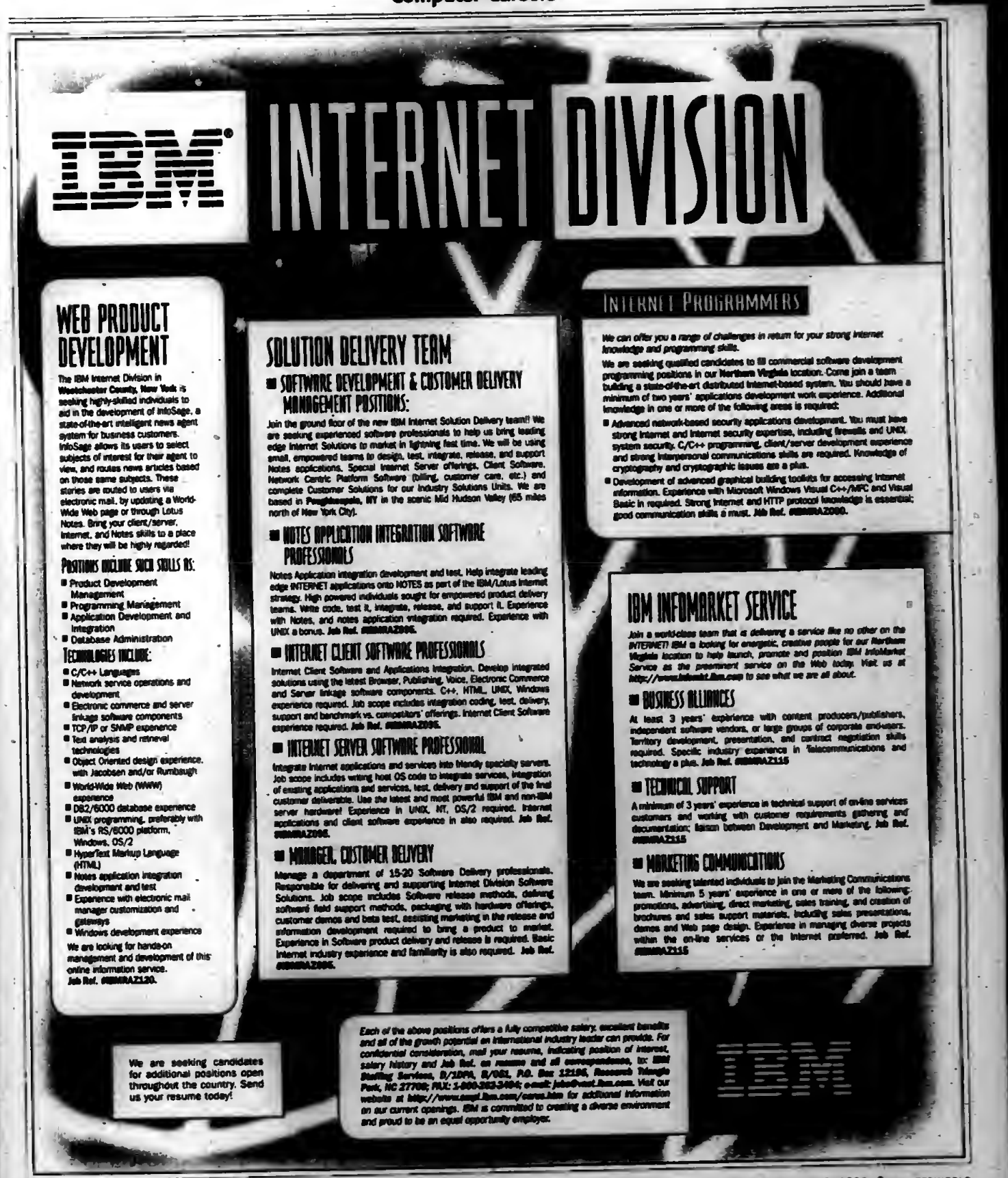

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- Text analysis and retrieval technologies
- Object Oriented design experience, with Jacobsen and/or Rumbaugh
- World-Wide Web (WWW) experience
- DB2/6000 database experience
- UNIX programming, preferably with IBM's RS/6000 platform, Windows, OS/2
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- Notes application integration development and test
- Experience with electronic mail manager customization and gateways
- Windows development experience

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■ INTERNET CLIENT SOFTWARE PROFESSIONALS

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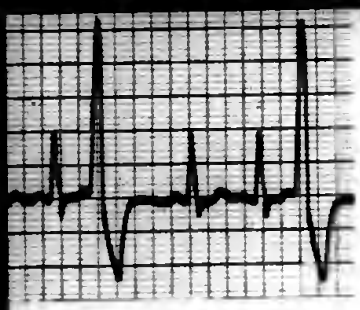

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Regional Scope: Michigan & Ohio

IS opportunities shine in the Rust Belt

By William Spain

Fortunately for information systems workers, the great Rust Belt job die-offs of the past two decades have had little effect on the demand for skilled computer personnel.

Quite the contrary. The few surviving traditional manufacturers are being forced to retool and modernize to compete, so there is no lack of opportunities in industrial centers such as Detroit and Cleveland. The job picture is similarly strong in Columbus, Ohio, where high tech has been big business for a long time.

Fuel for growth

In Detroit, the cycles of the automotive industry still drive the economy. And "the IS market is as powerful as I have seen in years," says Bob Schwartz, account manager of embedded systems/controls at information giant Electronic Data Systems Corp. The company is always looking for workers with "practical or process background in control systems [and] any of the formal software development methodology and processes," Schwartz says.

He says "a lot of the Unix-type skills are still very valuable." Many companies "haven't yet gotten beyond the learning curve."

Unlike the stereotype auto assembly line worker who attaches the same component to a car for his entire career, IS employees in the industry need to "have communications skills, flexibility and keep technically current," Schwartz says. "The most successful people in the market seem to be the ones who partner with customers and define their success on the customers' terms."

The health care industry is competing heavily for the IS job market in Detroit. "As we go through the transition to client/server and object-oriented programming, we need people [who] are really experienced in project management of client/server technology, people who have implemented large-scale client/server applications beyond just the development or the technology," says Jim Dunleavy, general director of IS at Blue Cross/Blue Shield of Michigan.

"A lot of big companies in the Detroit area are building new IS infrastructures," Dunleavy says, "and we are all going after the same talent."

Adding to this problem, Dunleavy says, is that applicants "all claim to be experts in client/server, but it isn't as easy to go through and sort them out as it was in the days of Cobol, when you could just give them a test."

Chuck Muller, principal at AJM Professional Services in Troy, Mich., also describes the Detroit area as having "one of the most active markets I've seen in nine years."

"During the recessionary period, everybody cut their staffs to [the] bone," Muller says, but IS departments generally weren't hit as hard as other departments. As the regional economy recovers, auto firms, leasing companies, banks, service firms, health care and insurance companies are hiring everyone they can find, he says. Particularly in demand, Muller says, are client/server skills, networking/LAN administration and Microsoft Corp.'s Visual Basic skills.

"Because of the high demand and low supply, we are seeing salaries being driven up," he says.

In Detroit, *strong competition in hiring is driving up salaries*

Work available

In Cleveland, a city with a legendary civic inferiority complex, IS personnel can at least be confident of finding work. Lauren Patrick, president of NetForce Development and Owl Consulting, says demand "is incredible" across the board.

"We are really searching for IDMS, DB2 and CICS people. There is still a real demand for some of the mainframe skills, and companies are willing to pay top dollar for them. The banks and the insurance companies need a lot of high-tech retooling, [but] financial institutions are generally not comfortable with the Internet because of security considerations," Patrick says.

Manufacturing firms, on the other hand, are usually looking for Internet skills, Patrick says. Also on the most-wanted list are people with C++, Visual Basic and Hypertext Markup Language skills. And "SAP is a huge, huge product here in town."

Shirley Bascomb, owner of Management Recruiters in North Canton, Ohio, sees "a real solid turnaround in the manufacturing sector. It has been reorganized, re-engineered and restructured." As a result, there is an increased demand for development skills in client/server technologies — from Visual Basic to Sybase, Inc. and Oracle Corp. relational database management systems and graphical user interfaces.

Bascomb says "the AS/400 market is also hot. You would think it is getting down to the end of its life, but IBM has turned it around."

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Banc One Corp. Columbus, Ohio Employees: 14,200 Sector: commercial bank	The Limited, Inc. Columbus, Ohio Employees: 10,700 Sector: specialty retailer

WHAT RUST BELT EMPLOYERS WANT
IS managers and recruiters say the following skills are most in demand:

CLEVELAND	COLUMBUS	DETROIT
IDMS	Unix	Control systems
DB2	LAN	Software development
CICS	HTML	Unix
SAP	Client/server	Client/server
C++	Oracle	LAN/networking
Visual Basic	Sybase	Visual Basic
HTML programming	CICS	
Oracle	PowerBuilder	
OS/2	Windows NT	
AS/400		

Strong economy

Internet skills are particularly hot right now in Columbus, which continues to have the strongest regional economy in Ohio. David Oberting, vice president/general manager of Management Recruiters in Columbus, says that "in 17 years, I have never seen anything explode the way the demand for IS people has in the last 18 months. Unix, C and C++ are just going bananas. Anyone who has these skills can write his own ticket."

Oberting also sees strength in the client/server, Oracle, Sybase, Cobol, CICS and Powersoft Corp. PowerBuilder markets. "Windows NT is beginning to take off, too," Oberting says. He says virtually all industries, from manufacturing to health care, are looking for skilled IS people.

"Everyone is upgrading. We could place 100; we could place 500. In central Ohio, anyone who can breathe is working," Oberting says. ■

Spain is a freelance writer in Boston.

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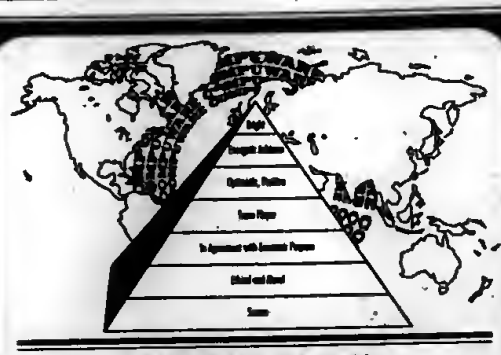

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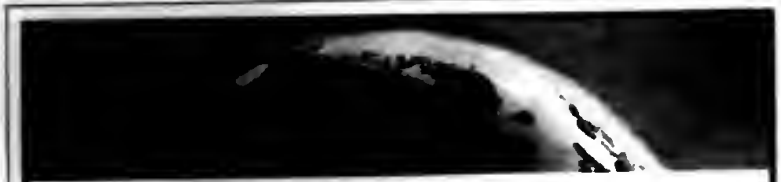

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Consultant to work with Truck Platform Centralization (TPC) project in leading role to design & develop ATM (Asynchronous Transfer Mode)/FDDI (Fiber Distributed Data Interchange) network architecture to support over 3000 UNIX workstations & file server systems; system configuration & interface of fast ethernet &/or FDDI heterogeneous network in client-server architecture environment with routers & gateways into number of subnets &/or FDDI backbone. Develop shell programs in Bourne, C & Korn shell, using C, BSD & System V system calls IPC TCP/IP, client-server programming, Motif/X Windows/Open System environment, troubleshoot UNIX (IM) servers like IBM POWER Server's R24 7051, S80/90 AUSPEX NS7000 Sun SPARC 2000E; debug system interface & performance of CAD applications such as IVED (Integrated Vehicle Electrical Design). Ungraphics, CGI & Genport, SABER in different platforms; set up customized server for serving CAD applications to clients including setting Disk Arrays with different RAID architecture for empowered performance & utility. Reqs: Master's in Comp. Sc., Electrical & Computer Control Systems or equiv. Must have course, project to exp using C, C++, INGRESS, UNIX, MOTIF/X Windows & grad level courses, 1 each in Mini & Microcomputers, Design of Digital Systems, Database Management Systems, Software Environment, & Design of Computer Language. $42,000/yr, 40 hrs/wk 8a-5p. Send resume to 7310 Woodward Ave. Room 415, Detroit, MI 48202. Ref. #37090 "Employer Paid Ad"

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Programmer Analyst - Plan, develop, test & document computer programs, applying knowledge of programming techniques & computer systems; evaluate user requests for new or modified programs to determine feasibility, cost & time req'd., compatibility with current system & computer capabilities; consult with users to identify current operating procedures & clarify program objectives; & using MVS, COBOL II, DB2, JCL, CMF, SPUFI, XPEDITOR & File-Aid. Requires Bachelor's in Computer Science, Systems Analysis, Computer Information Systems, Computer Engineering, Electrical Engineering, Electronic Engineering, Mathematics or its equivalent in ed. & exp. & 1 yr. exp. in job offered or 1 yr. exp. in related occup. as a Programmer, Programmer Analyst, Systems Analyst, Software Engineer, Computer Programmer or Consultant; will accept 3 yrs. of college ed. plus 3 yrs. exp. in the job offered or in a related occup. in lieu of the req'd. ed. & exp. Must have some related exp. which included using each of the following: MVS, COBOL II, DB2, JCL, CMF, SPUFI, XPEDITOR & File-Aid. $42,640/yr. 8a-5p, 40 hrs/wk, M-F. Send resumes to 7310 Woodward Ave., Rm 415, Detroit, MI 48202 & include ref.# 240-66. "Employer Paid Ad."

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Programmer Designs and develops various modules for inclusion as a decision support and reporting system with windowed desktop used for customized financial information. Develops graphic user interfaces in a Motif X windows based on end users specified needs and requires parsing files of data from various databases, scanning systems data and third party data products. Designs modules to insure appropriate access of data from various databases to allow customized report generation as well as management and operational information data access on various data levels using C/C++ and object-oriented programming to perform data acquisition in a distributed network environment in a UNIX environment. Uses SQL to manipulate a relational database including use of principles of fault tolerant computing, artificial intelligence and parallel computing. Requires M.S. degree in Computer Science or Electrical & Computer Engineering with a major in Computer Science. Education to include completion of one project using C/C++ to perform object oriented windows programming for data acquisition analysis including use of SQL to manipulate a relational database. Education to include completion of one course in each of the following: Fault Tolerant Computing, Parallel Processing and Artificial Intelligence. $30,000/yr, 40 hrs/ week, 9:00 AM - 5:00 PM. Two copies of resume to Mike Bassett, JETS - BMS, RLC Unit, PO Box 7972, Madison, WI 53707-7972. Please reference case #980108 on application materials.

Project Engineer for automotive firm. Duties include: Utilize the Automatic Control concepts in designing and maintaining the transmission control software. To include computer aided software engineering (CASE) tools to model automotive algorithms/analyses. Recommend and implement design changes to improve the quality of transmission software. Verify the common software to make sure it meets OBDII (On Board Diagnostics) compliancy. Software packages used are Teamwork, Ilsaf, Instrument Controller, Cadtools, Matlab and Simulink. Requires a Master's Degree in Electrical Engineering or Computer Science to include coursework in the following: - Nonlinear Control, Computer Algorithms I, Linear Systems and Advanced Network Analysis. Required six months on the job offered or six months in Software Applications to include at least four months experience in MATLAB and Simulink. Experience can be acquired as part of academic training or subsequent to it. Salary is $45,000.00 per year. Hours are 8:00 am to 5:00 pm. Forty per week. Send resume to 7310 Woodward, Room 415, Detroit, MI 48202 Ref #38386 Employer paid ad

Consultant required by Software Engineering Services Company. Duties: Design, development, maintenance, analysis, implementation of client/server applications using Powerbuilder, EPWIN, and UNIX. Duties also entail development of Powerbuilder class libraries, development of Powerdoc and teaching Powerbuilder classes. Must have one year experience as Consultant or in Related occupation as Software Engineer and a Masters Degree in Computer Applications or Computer Science. Must have minimum one year experience in Client Server Analysis, Design, Powerbuilder, Sybase, DBA, EPWIN and UNIX environments, Powerbuilder Certification or ability to obtain such Certification required. Salary $51,000/year, 40 hrs/week, 8:00 A.M. to 5:00 P.M. Apply at Texas Employment Commission, Austin, Texas or send resumes to the Texas Employment Commission, TEC Building, Austin, TX 78778. J.O. # TX 7515648. Ad paid by An Equal Opportunity Employer

Programmer/Analyst. 40 hrs/wk from 8am to 5pm. Salary at $48,000/yr. Job duties to include design and develop information Systems for financial institutions using Visual Basic, C, Clipper, DBASE, MS ACCESS and VBTOOLS. Require 2 years experience in job offered. Experience must include two years doing systems development for financial institutions working with the above mentioned software. Must have proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street-3 South, Chicago, Illinois 60605, Attention: Janet Aschenbrenner. Reference #V-IL 14086-A. An Employer Paid Ad. No Calls. Send 2 copies of both resume and cover letter

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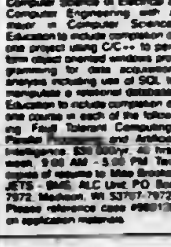

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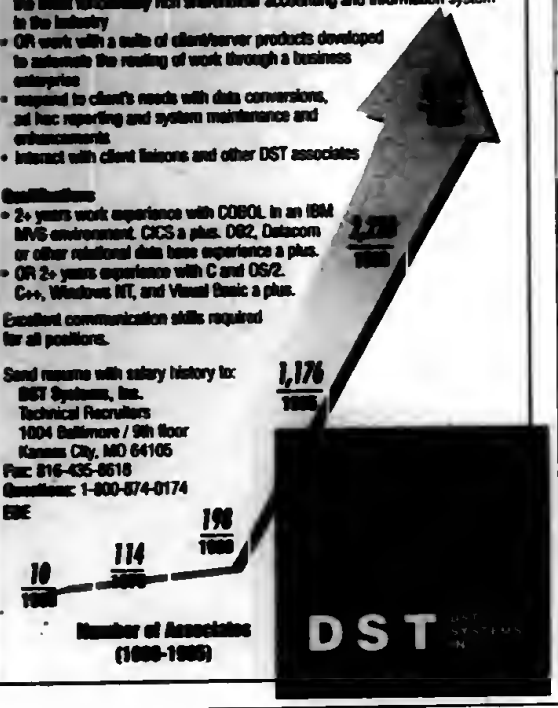

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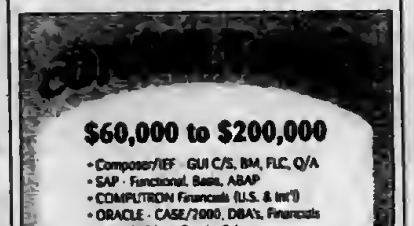
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Systems Integration Consultant, 40hrs/wk, 8am - 5pm, $38,500/yr. Analyze, design, & development of client/server applications software. Multi-platform integration. Local & wide area networking. Database design & development. Graphical user interfaces. Document image processing & multi-media utilization. Tools: C++, Windows, Windows NT, Visual Basic. B.S. in Computer Science/Computer Systems as well as one month experience in job offered or as Application Developer required. Previous experience must include: systems integration including hardware & software configuration, network application development, business system operation analysis & design using client/server technology, database design. Windows, Visual Basic. Must have proof of legal authority to work permanently in the U.S. Send two copies of cover letter & resume to ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago IL 60605 Attention: Donna Jones. Reference #V-IL-14208-D. NO CALLS. An Employer Paid Ad.

PROGRAMMER/ANALYST: (2 positions) 40 hrs/wk, 8 a.m. - 5 p.m., $48,000/yr. Carry out the systems analysis, systems design, coding and testing of computer software application systems on IBM mvf environment utilizing DB2, COBOL and CICS. Req: Bachelor's degree in Computer Science or Electrical or Mechanical Engineering. Req: 3 yrs. exper. in job offered, or 3 yrs. exper. in Systems Analyst &/or Programming &/or S/W Engrg. &/or Computer Consulting. Req: work exper. in dev. of s/w systems on IBM mvfs utilizing DB2, COBOL and CICS. Employer is a s/w development/consulting firm. Relocation to client sites throughout the U.S. for periods of 6 mos. to 2 yrs. required. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave, Rm. 415, Detroit, MI 48202. Ref No: 34295

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Consultant, 40 hrs/wk, 8am-5pm, $55,000/yr. Conduct object-oriented design, analysis, coding & maintenance of computer programs. Design, implementation & testing of client/server technology to include specifications design & documentation, standardization. Tools: C++, Visual C++, MS-Windows, UNIX, ODBC, OLE, MFC, Standard Components, M.S. in Computer Science or Electrical Engineering as well as 1 yr exp in job offered or as Research Engineer required. Prior experience must include object-oriented design, MFC, Visual C++, OLE, UNIX, Standard Components, MS-Windows. Send resume to Job Service of Florida, 2312 Gulf-to-Bay Blvd., PO Box C, Clearwater FL 34618-4080. RE: Job order #FL-1383171

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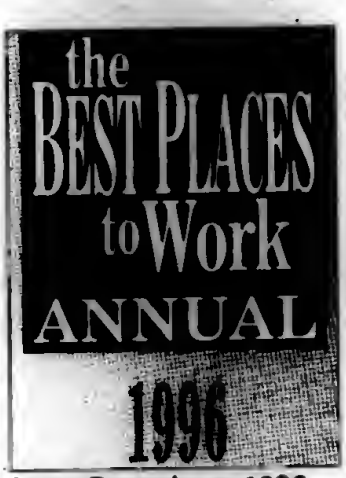

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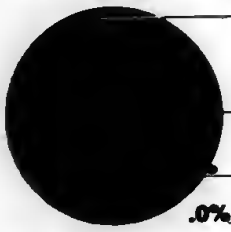

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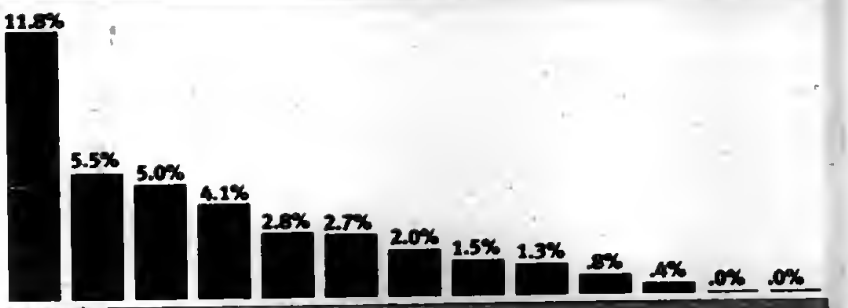

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An ISDN experience

The start-up can be challenging, but the benefits soon surface

By Chris DeVoney

The technology is turning 10 this year, and ISDN finally may be living up to its promises. But if my personal experience is any indication, what you get depends on where you live.

Moving to Integrated Services Digital Network (ISDN) makes sense. My Internet use is growing, personally and professionally. Many on-line services, such as The Microsoft Network (MSN) and CompuServe, offer ISDN dial-up connections. I also will review this year more than 50 products that require ISDN.

My ISDN needs are similar to those of most small businesses or remote offices that need to connect to the corporate LAN.

Most needs are satisfied easily by ISDN Basic Rate Interface service, in which two 64K bit/sec. B channels haul data and voice traffic and one 14K bit/sec. D channel handles low-speed packet data and signaling. The service can be a dial-up one or dedicated point-to-point.

I had hoped that ISDN, which can carry a computer connection and a normal telephone call at the same time, would help reduce my overall phone costs. I could get ISDN and eliminate one of my three analog phone lines and the phone line dedicated to my computer and fax machine.

First Stop: Frustration

The first logical stop was to order service from the local phone company. But this step also may be the biggest obstacle to using ISDN service.

Your phone company may not be able to provide ISDN service if your office or residence is beyond the physical limits — usually 3½ to 5 miles — of the company's digital switching office.

Your phone company also may be unprepared for the digital avalanche. For example, it took several days and several phone calls just to find the right office within US West Communications, Inc. to place a service order. The one-week qualification process, to verify the distance between my premises and the switch, took three weeks.

My calls for customer service were greeted by voice mail and seldom returned. It was four weeks from the time I ordered the service to installation — twice the length of time that was initially promised to me.

Missing the connection

Completing the connection means obtaining and installing the ISDN adapter. A local Internet service provider and MSN were my ISDN gateways to the Internet.

My first hardware choice was 3Com Corp.'s Impact modem. This external modem has a built-in network terminator, a jack for a single analog phone and V.32 bis (14.4K bit/sec.) capabilities. The modem also can bond its lines, so the two 64K bit/sec. channels can be combined into one 128K bit/sec. channel. But Impact exposed a problem in the serial ports of most PCs, whose top rate is 115K bit/sec.

An ISDN modem needs more configuration information than standard modems. This information, originally provided by the phone company, can be entered easily with the modem setup program. After installation, my first Internet ISDN connection failed, and I spent the next few days calling my local Internet providers and 3Com.

I soon discovered another ISDN term, Synchronous Point-to-Point Protocol (Sync PPP), which is a recent development of the Internet community.

Two International Communications Union standards (V.110 and V.120) cover ISDN data connections. Both are asynchronous standards; most Internet service providers use synchronous Ethernet connections.

Most ISDN modems are equipped for Sync PPP but default to V.110 and V.120. After I made the correct change to the modem's initialization string, I made my first successful ISDN Internet connection, just one week after my service was installed.

My second hardware choice was an internal U.S. Robotics, Inc. I-Modem. Installation with Windows 95 was tricky and required manual port selection. I lost my ability to call MCI Mail because of a signaling problem.

Benefits and glitches

Several friends have suggested that any time I save in the first year of using ISDN will be squandered by the time it took to install the service, but there are major payoffs.

Making ISDN connections can save from five to 50 seconds compared with V.34 connections. For short, bursty connections such as electronic mail, cutting down that period when the modems synchronize can save up to 10% of connect-time cost. Higher-speed throughput to the Internet is a benefit about 70% of the time.

Given the better speed, I don't avoid World Wide Web pages loaded with graphics. And the speed benefits gained on the Internet apply equally to remote connections to the main office network.

The ISDN modem requires little more attention than a standard modem. Most communications and remote access software works without change. But programs that top out at 28.8K bit/sec. or 36K bit/sec. lose the advantages of ISDN's speed.

In two years, ISDN equipment should reach the street prices of V.34 fax/modems (under $200). Sync PPP and Multilink PPP, which is needed for tele- and videoconferencing, should be standard in equipment sometime this year. ■

DeVoney is a computer columnist in Seattle and has written more than 20 books about personal computing.

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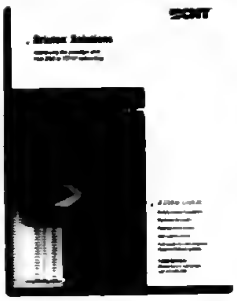

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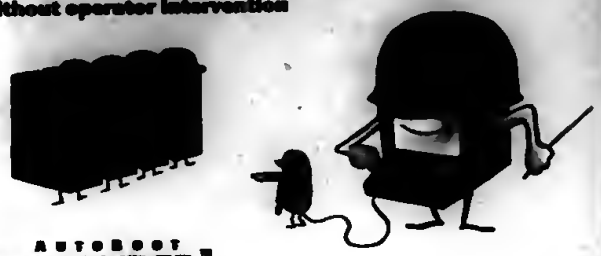

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Finance & Investing

Photo: Walt Dyer

IS professionals put stock in knowledge

By Steve Alexander

All investors seek to leverage their particular knowledge when buying stocks. But how much can or should IS managers use their knowledge of specific technologies and companies to beef up their portfolios?

"The stock market is a difficult place to make money unless you have special knowledge, and I think that IS managers ought to be able to profit from their knowledge," says Todd Dagres, a San Francisco-based general partner in Battery Ventures, a Boston venture capital firm.

But there is a limit on how IS managers can use their knowledge. For example, buying a small company's stock when you know that your firm plans to place a substantial order that will affect that company's stock is insider trading, Dagres says.

"Or maybe you are beta-testing a product, and you know it doesn't work. You could short the stock, but you can't do that because that crosses the line of insider trading," he adds.

According to the U.S. Securities and Exchange Commission (SEC), it is insider trading if the trade was based on nonpublic material information and if the trader got that information as a result of a fiduciary relationship.

But beyond the insider trading law, there are no hard-and-fast rules governing the investments of IS managers. Different companies have different policies.

"We don't have an IT-specific policy," says Charles Popper, vice president of corporate computer resources at Merck & Co. in Whitehouse Station, N.J. However, the company does have a general policy that covers all purchasing activity. According to Popper, the policy prohibits employees from owning more than 1% of the outstanding securities of any publicly owned corporation with which Merck conducts business. In addition, any investment in such a corporation cannot exceed 10% of the employee's portfolio.

But there are gray areas. For example, if IBM stock was the only investment in an IS manager's portfolio, it would violate the 10% rule yet be too small a fraction of IBM's stock to represent a conflict of interest.

"Our assumption is that anything you did in dealing with IBM would be immaterial to their stock," he says.

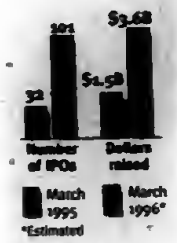
Jim Webber, president of Omicron, an association in Mountain Lakes, N.J., that sells information technology management advice, says many companies prohibit employees from owning more than 5% of the stock of any firm with which the company does business.

Jeff Marshall, senior managing director of the communications technologies group at Bear, Stearns & Co. in New York, doesn't keep a written policy but has nevertheless maintained a tough unwritten rule for 10 years. His employees can't invest in any companies that are significant vendors for Bear, Stearns. "Significant" means companies that have high profiles and companies with which Bear, Stearns places high-dollar orders.

Alexander is a freelance writer based in Edina, Minn.

The IPOs of March

High technology is leading a record surge in initial public offerings (IPO) this month. An expected 101 IPOs with a combined value of $3.6 million will hit the market. That's the highest one-month tally since December 1983, which had 98 IPOs. Of the 101 IPOs, 38 with a combined value of $1.3 billion are high-tech related, according to Richard Peterson, an analyst at Securities Data Co. in Newark, N.J. In 1995, there were 219 high-tech IPOs, the highest number since 1983, raising $8.7 billion, he adds.



Source: Securities Data Co., Newark, N.J.

— Tam Harbert

Selected computer IPOs expected this month

Micro Enhancement	1 million	$12 to $14	J. E. Liss
Sound Source Interactive	1.2 million	$5 to $7.50	Boston Group
Isocor	2 million	$6 to $7	Hambrecht & Quist
Workgroup Technology	3.4 million	$8 to $10	Alex. Brown & Sons
Lycos	3 million	$10 to $12	Hambrecht & Quist

Source: Securities Data Co., Newark, N.J.

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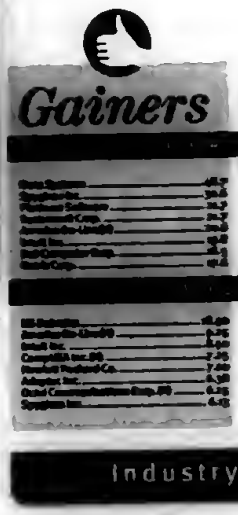
The Week in Stocks



Industry Almanac

IBM's hot streak

IBM (NYSE:IBM) has paralleled Michael Jordan's Chicago Bulls lately: Both have been riding sizzling hot streaks. In January, IBM's stock was about $89. By late February, it had risen more than 35% to $125. In early March, it settled back down to about $114. Is now the time to buy Big Blue, or would Nike Air Jordans be a better investment?

Buy Big Blue

"IBM's price is low right now, so it's a good time to start picking at it," says Roxane Googin, an analyst at Gruntal & Co. in Beverly Hills, Calif., who has IBM in her "outperform" category. "We think [the price] should go to around $120 and stabilize."

Googin expressed a few reservations about the Armonk, N.Y., company, however: "IBM has a bit of a problem with earnings growth in the next quarter or so."

Buy the shoes

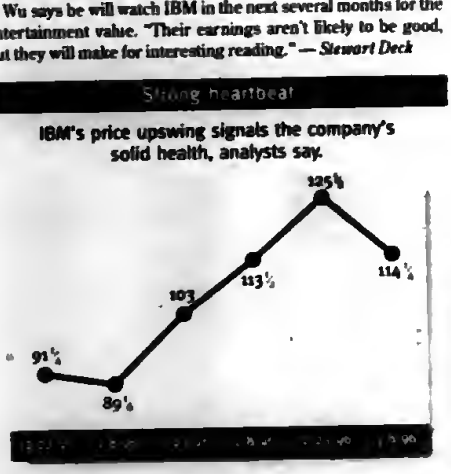
"I don't like IBM as an investment right now," says David Wu, an analyst at The Chicago Corp. in New York. "Their next two quarters are going to be rough."

Wu says the mainframe business, one of IBM's strengths, is still in decline. "The mainframe market is like an elevator going down. Lately, it has just stopped at one of the floors, but it will continue going down."

Wu says he will watch IBM in the next several months for the entertainment value. "Their earnings aren't likely to be good, but they will make for interesting reading." — *Stewart Deck*

Stirling heartbeat

IBM's price upswing signals the company's solid health, analysts say.



Exch	52-Week Range			Mar. 15 Wk Net Wk Pct $ ea Change Change
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AST	66.88	40.88	AMERITECH Corp	54.50 -0.88 -1.6
AXE	22 13	16.65	Ameritech Intl	10.00 0.63 3.6
APTS	15.00	2.75	Apertus Tech.	4.25 0.50 13.3
T	88.88	47.88	AT & T	61.25 -1.50 -2.4
ASND	49.65	7.25	Ascend Communications (N)	49.63 1.69 0.0
BNYN	18.63	0.00	Banyan Systems Inc.	0.00 0.00 0.0
BBY	50.00	21.25	Bay Networks Inc.	35.50 2.88 8.8
BBN	48.25	16.50	BBN Corp	29.63 0.00 0.0
BEL	60 38	51.50	Bell Atlantic Corp	62.00 -5.88 -2.9
BLS	46.88	29 13	Bellsouth Corp	36.63 -1.88 -3.6
BRKT	34.25	9.13	Brooktrout Technology (N)	34.25 4.13 13.7
CS	87.75	62.25	Cabletron Systems	69.50 -0.25 -0.4
CSCC	83.25	60 38	Cascade Communications (N)	81.00 2.00 2.7
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AALR	9.63	4.25	Advanced Logic Research	7.00 -0.75 9.7
AAPL	60 13	25.00	Apple Computer Inc. (L)	75.63 -0.38 -1.6
ASTA	19 13	5.50	AST Research Inc (L)	3.75 -0.06 -1.7
CPQ	56.75	31 13	Compaq Computer Corp	39.75 0.88 2.3
DELL	88 38	21.25	Dell Computer Corp	23.25 5.19 18.5
GATE	37.50	16.88	Gateway 2000 Inc.	27.50 3.13 12.8
HWP	104 13	50 13	Hewlett Packard Co.	88.75 7.00 2.6
MUEI	25.88	9.00	Micro Int'l Inc. (L)	10.25 0.88 9.3
NPNY	75 13	49 38	NEC America	54.50 -0.00 -0.9
SGI	65.63	21 13	Silicon Graphics	25.13 0.38 1.5
SUNW	57 13	16.13	Sun Microsystems Inc	46.75 2.00 4.5
AMH	13.63	6.25	Amdahl Corp	9.25 0.38 4.2
CYR	29.25	12.63	Cray Research Inc.	18.63 0.25 0.9
DGN	19 13	6.75	Data General Corp	15.50 0.63 4.3
DEC	76.50	21 50	Digital Equipment Corp	64.13 2.00 3.2
IBM	128.00	81.25	IBM	119.00 4.00 3.5
MDCD	13.00	3.00	Meridian Data Inc.	10.25 0.75 7.3
NETF	2 75	4.25	Network Int'l	4.88 0.25 5.4
SQNT	75 38	30.13	Sequent Computer Sys. (L)	30 88 -0.63 -1.7
SEQS	30.00	3.65	Sequoia Systems Inc.	5.75 0.13 2.2
STRA	36.13	23.00	Stratus Computer Inc.	27.38 0.00 0.0
TDMI	17.75	8.75	Tandem Computers Inc. (L)	9.00 0.13 1.4
TDCD	9.25	2.00	TeleCorp Systems	6.15 0.38 10.0
UIS	13.63	5 50	Unisys Corp	6.50 0.65 10.0
ADBE	74.25	30.00	Adobe Systems Inc.	34.50 2.50 7.8
AMSWA	0.75	5 50	American Software Inc.	4.13 0.25 6.5
APLX	41.75	6.25	Applix Inc.	30.50 4.50 12.9
ARSW	00 38	28.75	Arbor Software	62.88 1.62 -3.7
ACAD	52.00	27.75	Autodesk Inc.	37.25 3.00 8.8
BACH	11.88	3.88	Bachman Info. Systems	9.38 -0.88 -8.5
BGSS	42.00	26.00	BGS Systems Inc	29.50 1.00 2.9
BMCS	50.25	27.62	BMC Software Inc	30.25 4.00 8.2
BOOL	76.38	18.25	Boole and Babbage	23.25 0.82 2.8
BORL	21.25	7.75	Borland Int'l Inc.	19.94 1.19 6.3
BOBY	76.50	28.75	Business Objects	74 13 5.63 8.2
CSW	7.94	1.38	CE Software	5.00 0.00 0.0
CVE	27.88	12 38	Cheyenne Software Inc	22 88 0.25 1.1
COGNF	63.25	38.75	Cognos Inc (N)	55.25 3.38 6.9
CA	76.50	57.00	Computer Associates	72.88 5.38 8.0
CVN	15 50	4 63	Computervision Corp	10 13 -0.38 -3.6
CPWR	37.75	15.50	Compuware Corp	25.81 2.31 9.8
CSRE	27.25	9.88	Consultare	22.25 0.25 1.1
COSFF	19 38	8.38	Cosel Corp.	30.25 -0.19 -1.8
DWTI	16.75	6.25	Datawave Technologies Inc	4.50 0.00 0.0
DSKGF	12.25	9.75	Discreet Logic Inc	14.75 1.75 13.5
FILE	47.00	30.25	Filenet Corp	42.50 2.50 6.2
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GSOF	26.00	7 50	Group I Software	9 50 -1.75 -12.8
GPTE	11.88	6.88	Gupta	5.88 0.63 11.9
HOGN	12.88	5 50	Hogan Systems Inc	12 19 -0.19 -1.5
HYSW	38 38	16.00	Hyperion Software Corp	20.50 1.00 5.1
IRIC	38.63	30.00	Information Resources	34.50 0.00 0.0
IFMX	30 75	16.63	Informix Corp.	53.88 0.38 1.1
INGR	20 13	10.00	Intergraph Corp	14.75 -0.25 -1.3
LEAF	12.63	6.25	Interleaf Inc	8.94 0.31 3.6
ISLI	26.25	8.75	Intersolv Inc	11.75 -0.13 -0.7
INTU	88.25	25.63	Intuit Inc	51.38 8.50 39.8
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MENT	22 88	10.88	Mentor Graphics	14.88 1.12 8.2
MFGY	12.88	8.25	Micro Focus	9.62 0.38 4.1
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PSQL	16.88	3.13	Platinum Software	7.00 1.25 21.7
PLAT	36.00	31.25	Platinum Technology	34.25 -0.25 -1.7
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TRUV	10.13	3.88	Truevision Corp	7.00 0.50 7.7
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CHPS	15.88	2.33	Chips and Technologies	8.38 0.13 1.5
CRUS	61 13	36.75	Cirrus Logic	18.38 0.00 0.0
CY	27.75	10 00	Cypress Semiconductor Corp.	12.50 0.88 7.5
CYRX	60.75	18.25	Cyrix	39.44 2.44 11.6
INTC	78.38	46.13	Intel Corp.	58.63 5.50 10.6
LSI	62.50	22.50	LSI Logic Corp	28.25 2.75 10.8
LSCC	43.00	23.00	Lattice Semiconductor	30.63 1.19 4.3
MCRL	32 50	12 50	Micrel Semiconductor Inc.	12.63 -1.38 -9.8
MU	94.75	27.50	Micron Technology (L)	31.88 2.88 9.9
MOT	87.50	64.75	Motorola Inc.	55.00 3.63 5.0
NSM	33.50	14.13	National Semiconductor	16.88 0.75 1.7
SERA	28.75	9.75	Sierra Semiconductor	22.50 1.63 7.8
TXN	61.75	42 75	Texas Instruments	51.75 2.63 5.3
VLSI	39.13	20.75	VLSI Technology (L)	12.50 0.75 6.4
WWTR	6.00	1.25	Wafer	1.63 0.13 -7.1
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XLNX	35.50	20.75	Xilinx	36.75 4.25 13.1
ZLG	54.19	28.50	Zilog Inc.	33.13 1.13 3.5
APCC	25.00	7.00	American Power Conversion	10.38 -0.25 -2.4
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CBEX	13.15	3.63	Cabletx Corp	5.00 0.13 2.2
CGN	7.25	2.25	Comptronics Corp.	5.19 0.31 6.4
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DTRN	9.38	4.13	Datatrain Corp.	4.44 -0.31 -6.6
EMC	37.00	13.00	EMC Corp	20.69 0.38 1.9
EMLX	28.50	6.38	Emulex Corp	9.75 -0.30 -4.9
ESCC	25.25	15 00	Evans and Sutherland	23.25 5.00 4.5
EXBT	18.13	50 00	Exabyte	15 13 1.75 9.0
KSLP	4.25	1.50	Intelligent Info Systems	2.13 0.13 -5.8
IOMG	20.00	2.25	Iomega Corp	19.50 2.88 17.3
IPLSA	7.88	2.50	IPL Systems Inc.	4.88 0.50 11.4
KMAG	37 38	16.38	Komag Inc.	27.44 -1.19 -4.1
MLIS	7 50	1.75	Micropolis Corp (L)	1.94 -0.31 -13.9
MTSI	37.25	13.25	Micro Touch Systems Inc.	15.25 0.50 3.4
PEAK	36.75	16.75	Peak Technology Group	22 50 1.00 4.7
PMCL	19.75	5.88	Pinnacle Micro Inc.	18.00 6.00 0.0
PTAK	38.25	13.50	Printronix Inc.	5.25 0.50 10.5
AQM	7.13	3.25	QMS Inc.	19.00 1.94 11.9
QNTM	28.50	33.75	Quantum Corp.	1.00 0.00 0.0
RDUS	16.15	0.94	Radius Inc	58.75 3.75 6.9
SEG	67.25	25.00	Seagate Technology	38.75 0.23 0.9
STK	31.75	17.88	Storage Technology	33.50 3.75 12.6
TSX	61.88	29.75	Textronix Inc. (L)	132.63 5.38 4.2
XRX	166.63	108.38	Xerox Corp	
AMSY	26 38	11 38	American Mgmt. Systems	24.63 0.25 1.0
ANLY	37.75	20.75	Analysts Int'l	35.75 -0.38 -1.0
AUD	43 38	30.25	Auto Data Processing	40.25 2.25 5.9
CATP	61.00	27.25	Cambridge Tech. Partners	48.25 2.00 4.3
CEN	47.30	31.63	Ceridian Corp.	45.38 0.25 0.6
CDO	23.75	16.50	Comdisco Inc.	20.50 -0.13 -0.6
CHRZ	33.50	7.38	Computer Horizons	32.50 2.50 8.3
CSC	80.75	46.50	Computer Sciences	70.13 -1.00 -2.1
TSK	22 00	9.88	Computer Task Group	19.25 -0.75 -3.8
CUSA	49 13	17 00	CompUSA Inc. (N)	40.13 7.25 12.1
CDAT	25.00	6 50	Control Data Systems Inc. (N)	23.75 1.38 6.1
EGGS	14.75	5.00	Egghead Discount Software	8.13 -0.25 -3.9
GME	58.00	38.50	General Motors E (EDS)	57.38 1.38 2.5
IMAC	18.50	7.88	Imacon Corp	17.13 0.44 2.6
IREL	14.63	3.50	Intelligent Electronics	6.15 -0.11 -2.0
KEA	30.88	18.75	Keane Inc.	20.88 0.13 0.8
MSEL	8.38	3.25	Medisel	7.69 0.13 6.9
MICA	15.00	7.25	Microage Inc.	9.38 -0.25 -2.6
PAYC	62 50	28.13	Paychex (N)	38.88 2.63 4.6
PMS	54.75	42 63	Policy Management Sys.	48.63 -1.88 -2.8
REY	00.88	25 88	Reynolds and Reynolds (N)	39.75 -0.38 -0.9
SEIC	24.30	17.25	SEI Corp	22.75 0.00 0.0
SMED	67.00	32.00	Shared Medical Systems (N)	59.88 -0.75 -1.2
SSPE	28.30	14.88	Software Spectrum Inc	20.06 1.06 5.6
SNDT	36.75	21.88	Sundard Data Systems (N)	35.00 1.00 2.8

KEY: (N) = New annual high reached in period (L) = New annual low reached in period

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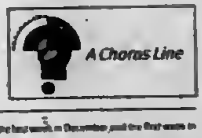

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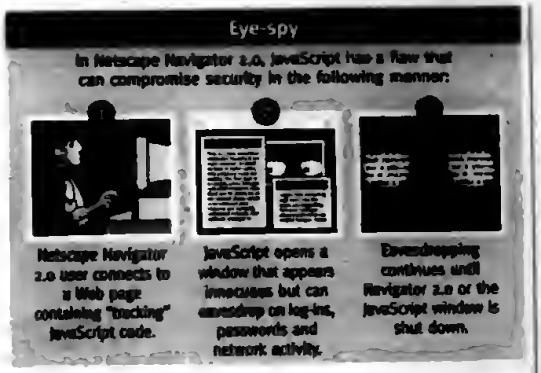

Eye-spy
In Netscape Navigator 2.0, JavaScript has a flaw that can compromise security in the following manner:
Netscape Navigator 2.0 user connects to a Web page containing "tracking" JavaScript code.
JavaScript opens a window that appears innocuous but can eavesdrop on log-ins, passwords and network activity.
Eavesdropping continues until Navigator 2.0 or the JavaScript window is shut down.

JavaScript traces user tracks

CONTINUED FROM PAGE 1

spite the similarity in names.

JavaScript, which was originally known as LiveScript, is Netscape's powerful scripting language that allows Web-page developers to open dialog boxes and perform other common actions of graphical user interfaces. Developers can embed JavaScript routines in Web pages, and the routines will execute as soon as a Navigator 2.0 browser encounters the page.

Open window

Unfortunately, that means a JavaScript script can open a new window on a Navigator 2.0 user's desktop, said John LoVerso, a researcher at the Open Software Foundation Research Institute in Cambridge, Mass., who first reported the problem in late February. That window can be used to track every keystroke the user types as long as the window is open.

Such a window can collect information, including any log-ins and passwords, that a user enters into a uniform resource locator and send it off to any site until the user either explicitly closes the window or shuts down the Netscape browser (see diagram).

That means a Netscape browser might prove costly even if most corporate data remains secure behind Internet firewalls. "There are plenty of people who sign on to pay-for-the-byte services through the 'net," said Charles Williford, an information systems specialist at Owens Corning Corp. in Toledo, Ohio. "If you can eavesdrop on log-ins, [an eavesdropper] could use up hours of time on those subscription services."

Netscape's first user show had demos and barbs. See page 64.

Price

CONTINUED FROM PAGE 1

er because it offers users a simple, straightforward per-client licensing deal.

The resulting user unrest over these server-based licensing and pricing disparities has Banyan and Novell considering a revision of their respective policies.

Currently, the two companies' licensing agreements require businesses to purchase a server license and a preconfigured number of client licenses. If a corporation purchases 10 servers, it must buy a corresponding user license to connect to each server.

Under the Microsoft deal, companies purchase exactly the number of user licenses they need and pay only one fee to access all Windows NT Servers in the organization, Microsoft product manager Betsy Johnson said.

So while a 10-user NetWare 4.1 upgrade lists for $995, in the same configuration, a Windows NT Server 3.51 upgrade retails for $839. But a NetWare shop that wanted to connect its 10 users to three file servers would also triple its costs to just under $3,000.

Money matters

That sharp cut to the wallet is generating some heat. "Novell is exploring a pricing option that requires users to only purchase a single client license to access [Novell's NetWare Directory Sevices] regardless of the number of servers the user is authenticated to," a Novell spokeswoman said. She said Novell has set no timetable for when, or if, this policy will go into effect.

"We recognize there is complexity in the way we sell now because there are so many different options and server configurations," said Elaine Haney, a Banyan product manager. She would confirm only that Banyan is re-evaluating its pricing, but several Banyan users said price changes are on the way.

IBM's OS/2 Warp Server, which was released at the end of February, also offers server-based pricing with the exception of OS/2 client. "I was surprised with the pricing because I thought it would cost more," said Richard Klumpp, CEO of UTAHN Systems in Portland, Ore.

However, the Microsoft per-client pricing model won plaudits from users.

Steve Sommer, vice president of MIS at Hughes, Hubbard and Reed law firm in New York, said his firm switched from NetWare to NT Server last year, and pricing was a big factor in the decision. "NT Server's per-node pricing policy saves us 40% over the cost of NetWare server-based pricing," Sommer said. "Nothing could be simpler or more economical."

Novell's and Banyan's server pricing model worked well five or 10 years ago when users were generally only connected to a single departmental file server, said Neil MacDonald, an analyst at Gartner Group, Inc. in Stamford, Conn. Today, however, many users find it impractical and financially prohibitive because they increasingly are using NDS or the Vines StreetTalk directory to access data residing on multiple servers throughout the enterprise. Costs can mount up quickly, users said.

Gary Willcerson, a senior planning analyst at health care provider Kaiser Permanente Health Plan, Inc. in Atlanta, bought a NetWare Master Licensing Agreement (MLA) 18 months ago and said the per-node pricing and access to unlimited file servers for one price were worth the expense. "Server-based licensing is like riding on a toll highway and paying for every mile. The MLA saves us 20% to 30% [in licensing fees] and a lot of hassles," he said.

Every rule has its exception. Novell's is its MLA and Banyan's is its VIP Program. Customers who sign up for these programs — typically very large firms with tens of thousands of users — receive client licensing terms similar to those offered to users of Microsoft's Windows NT Server. They also get steep discounts that can average 30% to 40% below list prices. However, as MacDonald noted, Novell's MLA and Banyan's VIP pacts are expensive and used by only a small percentage of the two firms' users.

"We love Novell's MLA agreement because we get a heavy discount, and we don't have to worry if we're overloading a server because it's based on per-node *not* per-server pricing," said Conrad Bujard, a systems officer at Hibernia National Bank in New Orleans. But some add-on NetWare applications are only available on per-server and not per-client licenses. "We're constantly taking user head counts," Bujard said.

NOS cost

Approximate pricing for network operating system servers, based on one server supporting 100 clients:

	New	Upgrade
Novell NetWare 4.1	$6,995	$2,795
Microsoft Windows NT 3.51	$3,299	$2,245
IBM OS/2 Warp Server	$5,038 (basic) $5,708 (advanced)	None (new product)
Banyan Vines 6.2	$9,995	$0*

*Part of VIP service plan, which costs $3,331 for 100 users

NetWare

CONTINUED FROM PAGE 1

The site differs from Novell's NetWire forum on CompuServe and other venues by combining the presentation technology and accessibility of the World Wide Web with NetWire's interactive sharing of NetWare expertise. Novell declined comment on the new offering.

Popular resource

"NUInet is the first place I'd go with a question, because when you post a question you get a response quickly," said Dale Cantrell, director of central services for Adams County in Washington state. "It's hard to find information on NetWire and the Web pages for Novell, Microsoft and other vendors. And you can't get good NetWare phone support without paying a lot."

Support options for NUInet include the following:

- Updated logs of the patches and files provided by Novell.
- Hot links for downloading fixes, scanning the NetWare support encyclopedia or submitting problems to Novell engineers.
- Problem/solution discussions dating from January when site testing began.

NUInet's dialog, although nowhere near as extensive as NetWire's message threads, grew more robust as NetWare managers around the world learned about the fledgling service by word of mouth, electronic mail and NUI alerts.

"I bookmarked this site on my browser after finding a quick answer to a CD-ROM access question that my Novell [reseller] said required downloading and applying every patch to NetWare 4.0 to get started," said Brian Willard, an integration support analyst at Data Management Group, Inc. in Oakbrook Terrace, Ill.

It is a Web site with static postings, but NUInet feels like a live forum a la NetWire, many of its users said.

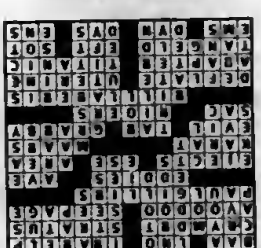
"Since some of the same people answer the questions on this forum as in NetWire, I assume the quality of support will be comparable," said John Bailey, a network manager contracted to run a 900-node network for the U.S. Navy.

"We strive to give a real answer, not necessarily a Novell answer," said Mickey Applebaum, a NUInet forum leader and former NetWire systems operator whose day job is senior networking consultant at Erudite Software & Consulting, Inc. in South Jordan, Utah.

"We can say flat out that something won't work when Novell is obligated to say it will," he said.

Novell works to integrate IPX and TCP/IP. See page 55.

Solutions to this week's crossword puzzle

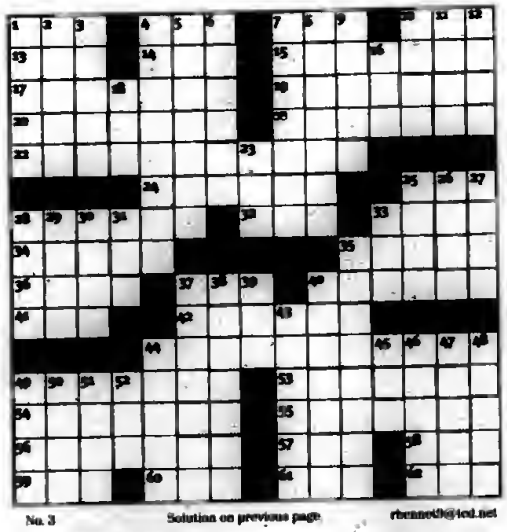


Editor Paul Cullen, former Editor Bill Laberis, Viewpoint editor Mitch Betts, and Senior writer Mindy Blodgett are the featured Computerworld superstars.

Who's who here?

Computerworld crossword by Rick Bennett

Who's who at *Computerworld*? The editors and writers make this publication what it is today. See if you can find four CW superstars . . . without sneaking a peek at the masthead.



No. 3 Solution on previous page rbennett9@tcd.net

ACROSS

1 A close-sleeved linen liturgical vestment
4 Cast out
7 Bro. or sis.
10 Academic meas.
13 Ovine cry
14 K-P sandwich, less the M
15 Stupid old-tech. recording?
17 Sad sis. city of Helena?
19 Boston fault-tolerant computer maker
20 Specific Haitian magic spell
21 Flow
22 WHAT IS THE EDITOR'S CHAIR?
24 Currents
25 Latin for hail
28 Expels
32 Compass heading
33 Pi x R-squared
34 Gold measure
35 Volcanic craters
36 Morally objectionable behavior
37 Keyboard key
40 Avaricious
41 A baglike structure in a plant or animal
42 Travelers
44 FORMER EDITOR
49 A way to lessen
53 About the womb
54 Indispensable open systems device?
55 Colossal
56 Hybrid between tangerine and grapefruit
57 A newt in its terrestrial stage of development
58 Drunk
59 Type of PC mem.
60 Field force unit
61 Elements
62 Printer's spaces

DOWN

1 Children's computer prog.
2 Pre-metamorphic insect
3 An arm or outlet
4 MINDY OF CW's MOBILE COMPUTING
5 Group of irked people
6 Young
7 Cowards
8 Utmost
9 Publicizes
10 "— grip!"
11 Leak solution
12 Recess for an altar
16 A period of sleeping
18 Metric weight unit
23 Pretend falsely
25 Semite
26 Assembly language operator
27 Rider or money preceder
28 Supplements with difficulty
29 Bane of Microsoft?
30 __ Clapton, musician
31 Silicon Valley state, abbr.
33 Desert Storm nemesis, abbr.
35 CW VIEWPOINT EDITOR'S MOM
37 In a corny way
38 Controls lateral motion
39 Package, abbr.
40 Give satisfaction to
43 In a way, washed
44 In a way, restrained
45 A major division of geological time
46 Washer cycle
47 Point of skull
48 Factions
49 Mainframe system time bomb field
50 Mild yellow Dutch cheese made in balls
51 Winnows
52 A rural fuel, abbr.

For questions or comments, contact the author at rbennet9@tcd.net.

Inside Lines

Offensive maneuvers

Sun Microsystems plans to announce Solaris-based World Wide Web server software next month at Network/Interop. In keeping with Sun's disdain for all things Microsoft, the Solaris Internet Server is targeted specifically at the Windows NT-based Internet Information Server that emerged from Redmond, Wash., recently. What about Netscape and its market-leading Web server software? Perhaps Sun is applying the realpolitik theory that the enemy of my enemy is my friend.

Primary diversions

Web surfers who mistype the domain name when seeking the latest news about the White House denizens may encounter Beavis and Butthead instead of Clinton and Gore. Web designers at Why? InterNetworking in Washington mimic the www.whitehouse.gov home page at their site (www.whitehouse.net) but add random changes. These include a slide show about the First Lady's evolving hairstyle, a "What's Cookin' " topic that highlights the president's culinary preference for the Golden Arches and a photo of Gennifer Flowers beside the "Presidential Pastimes" topic.

Local carriers link up

Ameritech and GeoNet will soon announce plans to jointly develop GeoNet's Application Manager, a package designed to sit on the public network and let carriers provide users with flexible data networking services that link distributed sites. A source close to the Vero Beach, Fla.-based GeoNet, said Ameritech could offer services based on Program Manager later this year.

Digital friendships

Two Stanford University professors have concluded that people interact with computers about the same way they do with other people. In a study, subjects were asked to perform the same task on their own computer and an identical machine; they consistently rated their own computer's performance higher, possibly to avoid offending their "co-worker."

Microsoft goes Hollywood

Corporate tongue in cheek, Microsoft last week treated users to a roaringly funny video satirizing Internet market hype. The first clip, complete with subtitles, showed an Italian man confessing sins. "I tried to hack in to the Vatican mainframe," the weeping man revealed. The priest suggested he surf http://www.mom.suffering.nun for penance. Later, a spoof of those make-money-fast videos played. The spot, "Web of Wealth," featured a wide-eyed "Bill," played by Gates himself, who marveled about how easy it is to get into the on-line services biz.

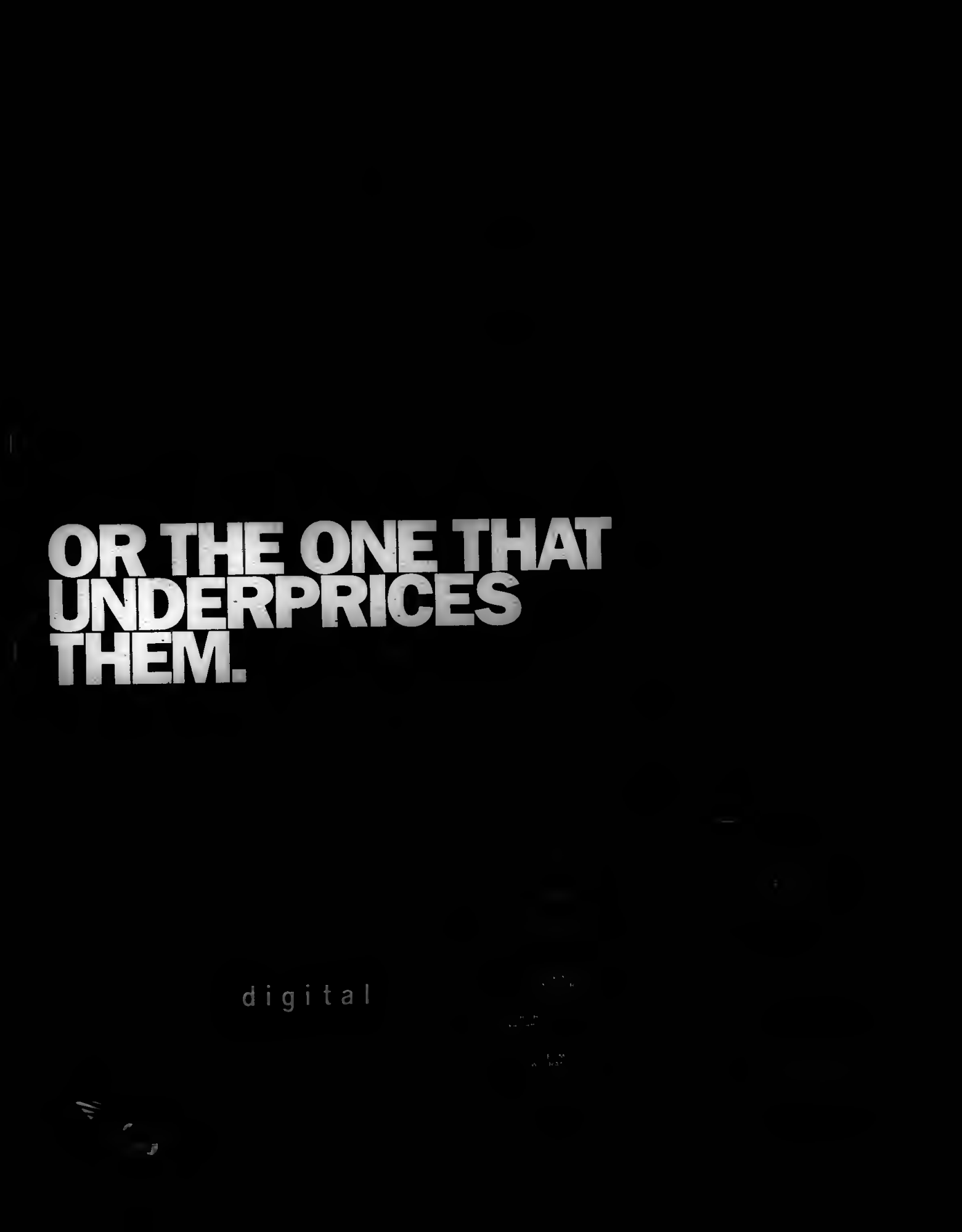
Fore! WAN access products on the way

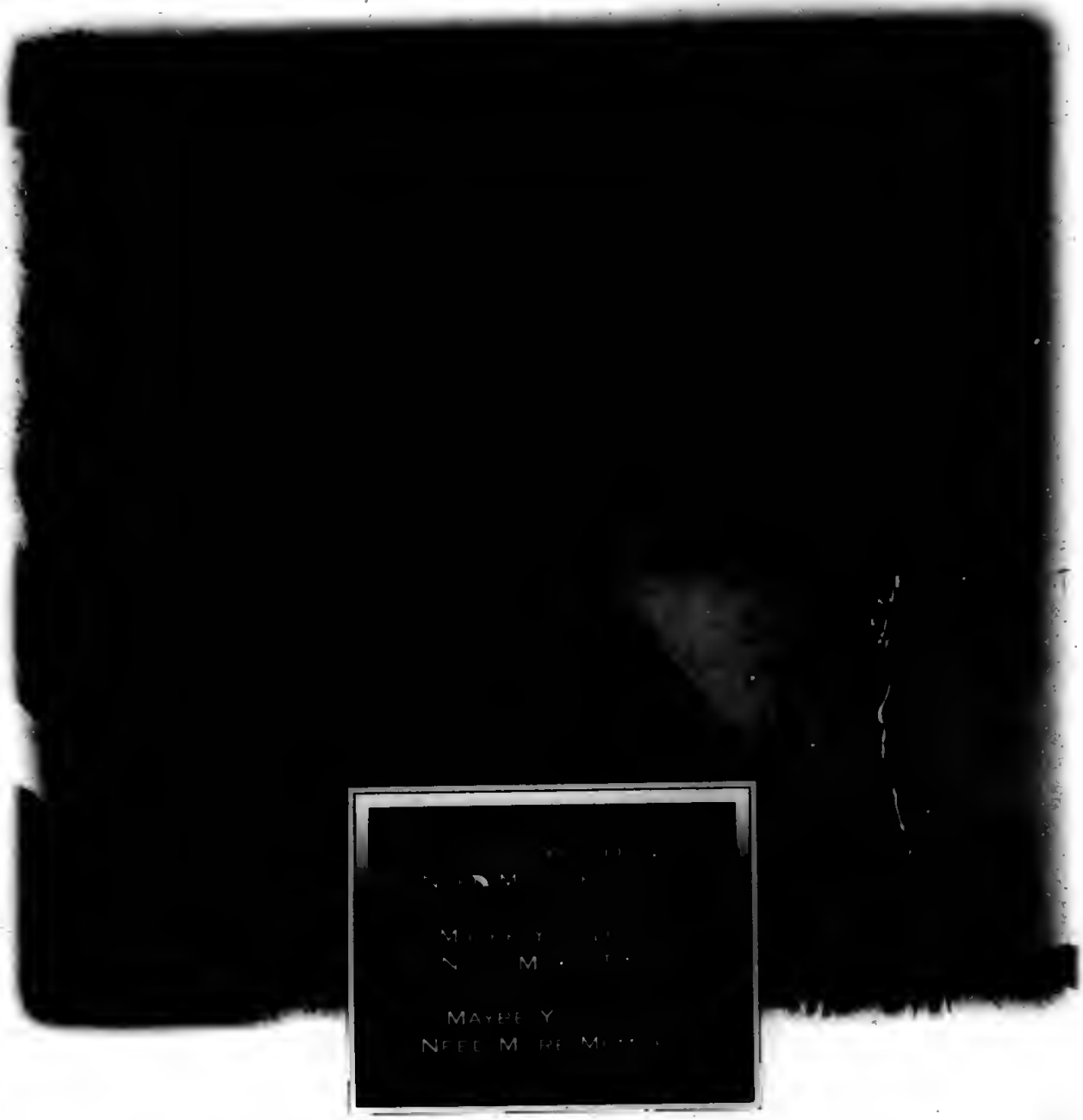
ATM market leader Fore Systems in Warrendale, Pa., this week is expected to announce an array of WAN access products that help users justify ATM WANs by aggregating voice, data and video traffic at remote sites on single wide-area ATM links. The products were developed largely by CellAccess Technology in Los Gatos, Calif. Fore announced plans to buy CellAccess for $50 million to $55 million last December.

The 5th Wave by Rich Tennant

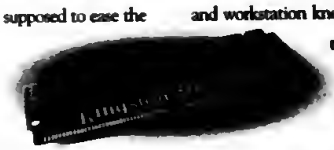
Ballistic Bill? In a talk with reporters at Microsoft's developer conference last week, CEO Gates railed, huffed and chuckled derisively when quizzed about how Microsoft intends to fit in to the Internet. "You're confused!" he told the group — and more than once. Apparently, we all were. Gates had a hard time explaining how, exactly, IS can best figure out when to use an intranet, when to use Microsoft Exchange or a groupware product such as Notes and when to leave well enough alone. Then he claimed there was no Internet battle between Netscape and Microsoft. "You [media] people overdramatize these things, but that's your job." We thought our job was to keep you informed, but you can add some drama to our pages with your news tips by calling Computerworld's *24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Patricia Keefe can be reached by phone at (508) 820-8183 or via the Internet at tish_keefe@cw.com.*

OR THE ONE THAT UNDERPRICES THEM.





These days, you can sum up the human condition like this: too much work, not enough time. Computers, of course, are supposed to ease the burden. But now, with all the new memory-hungry software out there, many computer systems aren't up to the task. Fortunately, there's a simple solution: add more memory. Recently, an independent study* revealed that by adding just four megabytes of memory, the average manager became 26% more productive. The average number cruncher improved by 12%. So, why Kingston memory? Because Kingston makes memory for almost every PC, server, printer, and workstation known to man. Our memory is designed to meet, or even exceed, the specifications set by leading computer manufacturers. We test every cell on every chip on every module. (On a 16 megabyte module, that's 128 million cells.) If you ever need help, our service and support will quickly shoulder the load. Is it any wonder Fortune 1000 companies use Kingston memory more than any other brand?



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